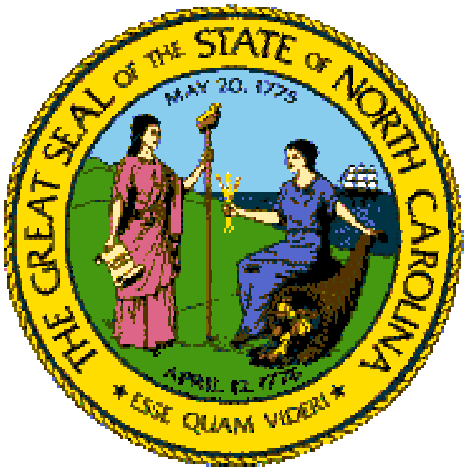

PHASE I State of North Carolina

Business Systems Infrastructure Project

Phase1 – Inventory and Assessment

Executive Summary

April 2003

Deloitte Consulting

www.osc.state.nc.us

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State of North Carolina
Office of the State Controller

Michael F. Easley, Governor

Robert L. Powell, State Controller

April 8, 2003

To: Interested Parties

From: Robert Powell, State Controller
David McCoy, State Budget Officer
Thom Wright, State Personnel Director
George Bakolia, State CIO

Subject: Business Systems Infrastructure Study
Phase 1 (Inventory and Assessment Study)

In January of this year, we announced the kick-off of a joint study to examine the State's core business systems. We are pleased to provide to you the results of Phase I of this study, which covers the inventory and assessment of those core systems that manage the financial and human resources of state government. We want to take this opportunity to thank all of the individuals who assisted with this effort.

The results and findings from Phase I, document that our present core business management systems are chronologically old, technically outdated, difficult to maintain and support, unresponsive to today's data analysis and information reporting requirements, and at risk of failure from both business and operational perspectives. The findings also point out that many of the agency staff who know and support these systems are retiring or nearing retirement age.

Phase I findings justify moving forward with Phase II of this study, which is referred to as a *Blueprint for Selecting an Improvement Approach*. The purpose of this next phase is to identify viable options for implementing a comprehensive, fully integrated, and responsive business systems infrastructure for the State of North Carolina. This phase will kick-off within the next week with the issuance of a Scope Statement. It is expected to be completed by late summer 2003.

The Executive Summary of Phase I, the detail report and all supporting schedules are found at (link to internet address). Please feel free to contact us if you have any questions.

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1 EXECUTIVE SUMMARY

1.1 Project Overview and Summary Findings

North Carolina State government is a large, multi-faceted organization with broad and diverse responsibilities. It must provide a variety of services to its citizens and be accountable for multiple and complex programs. The State is experiencing continuing challenges from budgetary constraints, public desires for expanded services, and taxpayer demands for more effective and efficient operations.

With an annual budget of $26 billion and over 265,000 employees, the State would be a Fortune 50 company, if it were a private organization. An absolute prerequisite for the State to meet the public's expectations for cost-effective operations and accountability for program performance is the superior management of its fiscal and personnel resources. Robust financial and human resource systems, employing modern technology and linked together electronically, are necessary for meeting this need.

The State's current core business systems are not up to this task. They are old, rely on outdated technology, do not communicate well with each other, and are difficult to change for new operational requirements. Moreover, they do not provide information needed for management decision making under today's much more demanding needs. They are at risk of failure due to old age, loss of vendor support, and are supported by a workforce that is rapidly reaching retirement age.

These concerns prompted the State to identify the need for further analysis of its current business systems and determine the feasibility of developing and implementing a new financial business infrastructure. The need for an infrastructure inventory and analysis was further reinforced by the Report of the Governor's Commission to Promote Government Efficiency and Savings on State Spending, which recommended that the State move this specific process forward in an effort to reduce duplication, redundancy and inefficiencies.

In the 2001 session of the General Assembly, legislation was enacted to authorize a State Business Infrastructure Study. Session Law 2001-491 directed the Office of the State Controller (OSC) to determine the feasibility of developing and implementing a new business infrastructure for the State. Session Law 2002-126 directed the Legislative Research Commission to conduct a State Human Resources and Retirement Systems Information Technology LRC Study. After some delay due to funding constraints, these two studies were combined under the direction of the OSC with assistance from the Office of State Budget and Management (OSBM), the Office of Information Technology Services (ITS), and the Office of State Personnel (OSP).

The systems included in the State Business Infrastructure Study support the following business functions: financial management, cash management, payroll, human resources, budget management, procurement, treasury, retirement, and revenue accounting. For these core systems, a range of data was required to be collected, specifically:

- Core System Purpose and Capabilities;
- Planned System Enhancements;
- System Interfaces;
- Costs Associated with Existing Systems Operation;
- Industry Best Practices;
- Functional Gaps / Operational Risks.

The findings listed below resulting from the State Business Infrastructure Study, Phase I - Inventory and Assessment project, further emphasize the State's current technology environment. These are consistent for most, if not, all of the systems reviewed. In addition, many of these universal findings also align very closely with the Governor's Commission to Promote Government Efficiency and Savings on State Spending. At a high level, these findings are as follows:

- The State's administrative systems do not easily and routinely communicate with each other (i.e., lack of integration) - This oftentimes results in duplicative system maintenance, operation, data entry functions, and databases.

- The core business systems were developed using what is now dated technology - They can not satisfy present and future needs for collecting, managing, and reporting information and meeting operating requirements for self-service features. They are at risk of failure due to systems that are in danger of losing vendor support. Also, the workforce maintaining them is reaching retirement age.

- At the present time, the State does not have a documented core business systems enterprise (statewide) strategy – Agencies continue to develop core business solutions in lieu of an approach that is coordinated and planned from a statewide perspective. While each individual application accomplishes specific work tasks and processes, the most important requirement is the exchange of information among the State's systems, and the ability to obtain comprehensive reporting and analysis. Without a master plan that prescribes how these core systems will evolve, a comprehensive and integrated financial and human resource system will not be realized.

- A general lack of employee, employer or customer self-service exists within today's business systems infrastructure – As a result, information from the systems is difficult to obtain and often late. More important, extra costs are incurred due to the additional staffing required to input data, and this is often the same data to multiple systems.

- The current business systems and processes available to support business functionality and management fail to meet industry best practices or efficient processing standards - The State currently lacks the ability to gather consistent, consolidated statewide information in a timely manner, resulting in information not available when and in the manner needed (and many times not available at all).

- The inability of the core systems to meet agency business requirements results in the development and ongoing maintenance for a host of agency-based systems – While it was noted that the core business systems provide much of the functionality that is required by the State's central control agencies, there is a lack of functionality required by the State's operating agencies. As the agency business requirements continue to be unmet by the core systems, many individual agencies have been and will be forced to implement agency specific solutions resulting in redundant data stores, redundant data entry, and redundant maintenance and operations costs.

- The current systems are generally paper based and signature driven and do not provide automated workflow, which would route documents electronically for review and approval - This requires users to circulate paper and obtain written approvals often resulting in needless delays and inefficiencies.

Unless the State steps forward and addresses the need for a new enterprise business solution from a statewide perspective, the efficiencies and costs savings that can be realized from a system enterprise approach will never be realized. While this report provides an inventory of the core business systems and the related agency business systems and an assessment of the current status of each of the core systems, it is clear that the State should move forward with Phase 2 of the project. Phase 2, which will include developing a Blueprint for Selecting an Improvement Approach, is a necessary next step to determine viable options, approach, and timeframe for implementing an integrated enterprise business infrastructure solution.

1.2 Project Approach

In addition to the core business systems infrastructure review, agency program and systems staff were also interviewed / invited to provide information regarding their interfaces to the State's core business systems. The interviewees were chosen because of either their leadership roles in support of the current core systems, or because they represented a cross section of current or future end users. The interviewees were asked to comment on their understanding of the current system environment. They were also asked to comment on the system's viability, functional/business requirements that are not being met, the risks of keeping the current set of software/hardware solutions, and opinions on the various options for the future. A list of interviewees by role and agency is provided in Appendix F, Interviewee List. The inventory and assessment effort was scheduled to be completed over a nine-week timeframe. Given the short duration of the project, a mix of in person interviews, telephone, and electronic survey mechanisms were utilized to gather, validate, and document the required information from subject matter experts across the many departments and agencies impacted.

The current core system functionality and technology were compared to Public Sector "best practices". Industry best practices were gathered from State and Federal entities that have successfully transformed or are in the process of transforming their business systems infrastructure with information technology solutions that have taken advantage of economies of scale, reduced the cost of doing business, and incorporated e-Commerce initiatives. The results of this comparison were used to identify business and technical "gaps" in current core systems capabilities. Finally the team also addressed the continued viability of each of the core systems. This Executive Summary provides an overall assessment for core systems. Each of the subsequent sections of this report provides a more detailed assessment for each of the core systems that were reviewed.

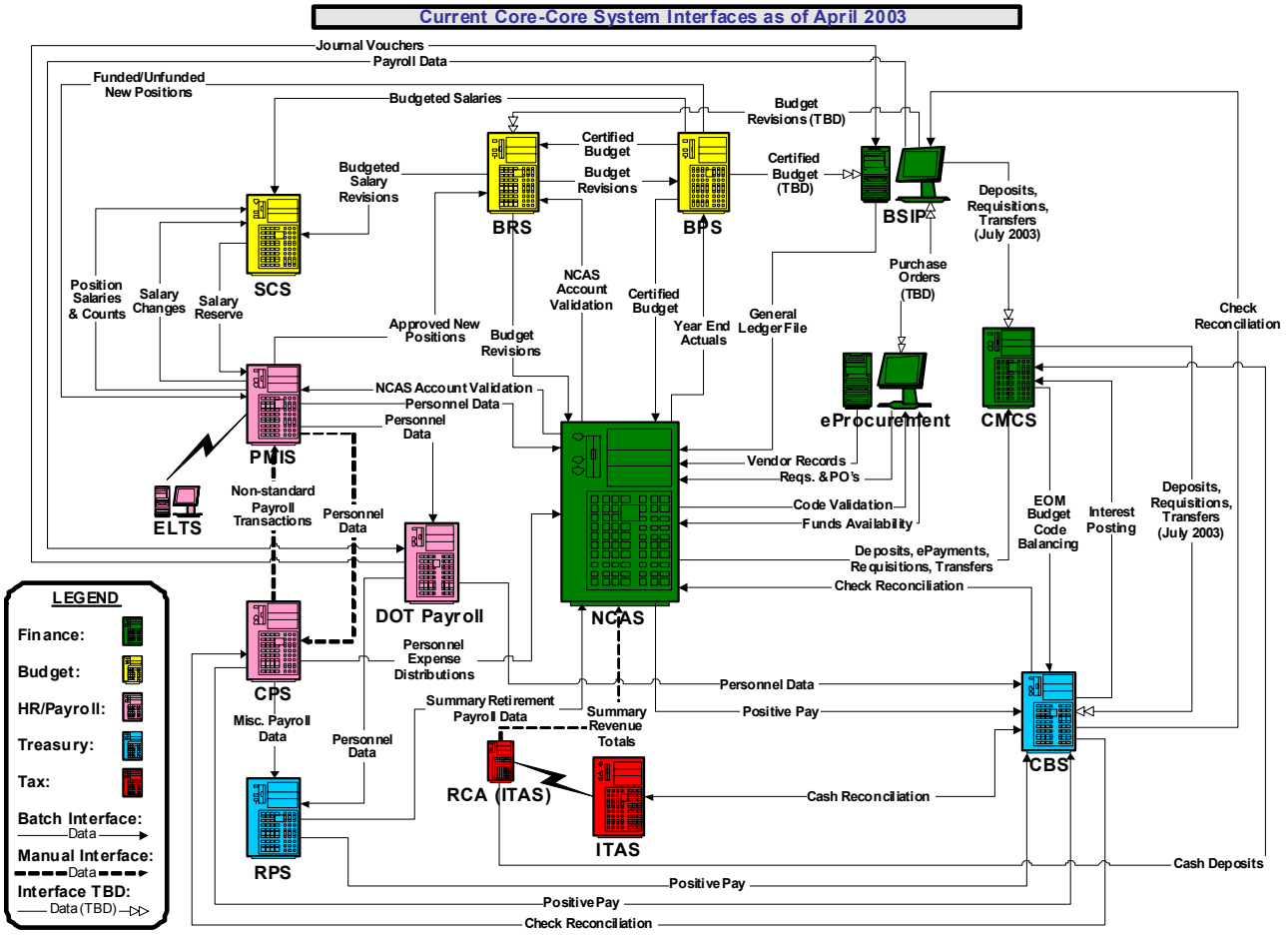
Project progress was monitored and reported weekly to the Project Steering Committee. The State Controller, State Budget Director, State Personnel Director and State CIO led this committee. This document represents the data gathered, validated, and analyzed by the project team and achieves the Phase I goal of delivering a high-level inventory and assessment of the State's core business systems.

The goal of this project is to conduct an inventory of the core business systems and the related agency business systems. The core business systems included three systems DOT BSIP, Core Banking, and Retirement Payroll where the nature of the reviews was limited because the systems are in various stages of being replaced. The core systems also include e-Procurement. The scope of the e-Procurement review was also limited because of pending implementation issues.

The analysis in this document provides an "as-is" assessment together with a comparison to industry best practices, and highlights functional and technical "gaps" in the existing infrastructure that will need to be bridged in order to deliver the most effective future infrastructure model. The output of this phase will be utilized to support the next phase of the State's efforts to advance government solutions and gain operational efficiencies, specifically to determine and document viable options for implementing the most appropriate financial business infrastructure for the State of North Carolina, one that includes integrated operations for business functions of state government.

1.3 Current System Environment

The State's core business systems are made up of disparate applications that are linked through a series of batch interfaces, require redundant manual data entry, and can not easily communicate with each other. Because these systems are not integrated, multiple versions of the same data are stored throughout these systems. For example, the same vendor master data is stored in three different systems. In addition, the central chart of accounts data is maintained in more than five systems. The inventory of the State's existing core business infrastructure is depicted at a high-level in the following diagram:



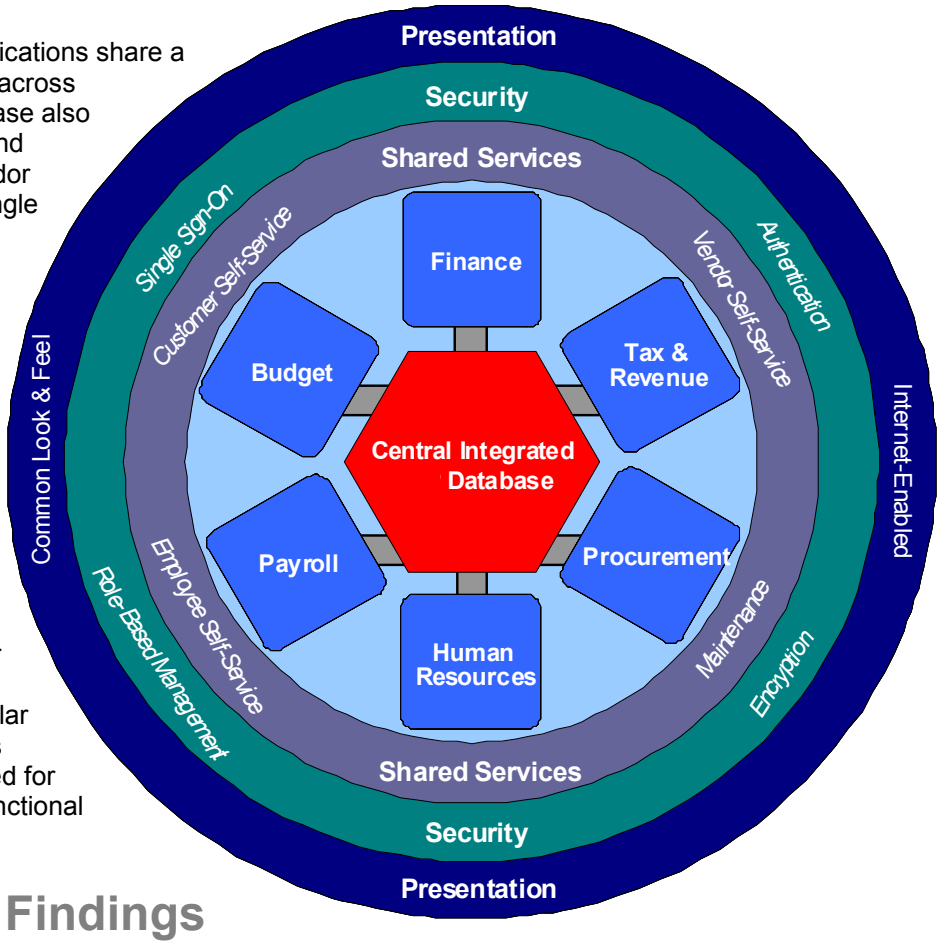
LEGEND OF ACRONYMS:

BPS ----------Budget Preparation System	ELTS---------Employee Leave Tracking System
BRS ----------Budget Revision System	ITAS----------Integrated Tax Administration System
BSIP ---------Business Systems Improvement Project (DOT)	NCAS--------North Carolina Accounting System
CBS ----------Core Banking System	PMIS---------Personnel Management Info. System
CMCS -------Cash Management Control System	RCA----------Revenue Collection & Analysis System
CPS ----------Central Payroll System	RPS----------Retiree Payroll System
DOT ----------Dept. of Transportation	SCS----------Salary Control System

This diagram highlights the State's current reliance on extensive (and costly) interfaces – both manual and electronic – that are required to achieve the current level of data sharing and operating efficiencies (e.g., reduced data entry, etc.) seen in these core business systems today. It is widely acknowledged that a quantum leap in efficiencies could be achieved through a reduction in interfaces and an increased reliance on *integration* as well as operational efficiencies achieved through shared technology services. Industry best practices for core business systems infrastructure bear this out.

The following diagram depicts a business infrastructure that relies on *integration* and shared services in order to simplify the maintenance and operation of a state's core business systems and at the same time improve the level of service delivered to internal and external customers:

Best Practice Integrated Enterprise Solution



In this diagram all of the core system applications share a single database. This facilitates reporting across functions and agencies. The single database also eliminates the need for data exchanges and redundant data storage (e.g. a single vendor file rather than multiple vendor files). A single integrated database also eliminates redundant data entry. A transaction is entered once and all of the appropriate tables and records are updated. Redundant data entry not only increases the level of effort required to enter data; it also increases the likelihood of data entry errors.

Another benefit of the enterprise wide model is the use of shared services. The self-service capabilities are shared across all of the applications. This allows the same maintenance function to support all applications. The security layer supports single sign on for all applications and the presentation layer provides a similar look and feel across the applications. This serves to reduce the training effort required for employees who transfer from one core functional area to another.

1.4 System Specific Findings

The following section highlights some of the more important findings specific to the individual business systems reviewed:

- The new core systems that are being developed are required to comply with the State's IT strategy. These systems employ technologies that support statewide open architecture standards to facilitate data sharing among the core systems. It should be noted however, that the actual integration of these systems with the other core systems is dependent on the other core systems being migrated to open system architecture technologies as well.

- The functionality provided by the Central Payroll System (CPS) and Personnel Management Information System (PMIS) does not address all of the agency level HR/Payroll business requirements. As a result a number of agency based HR/Payroll systems have been developed. At the present time, the State of North Carolina operates thirteen payroll systems that interface to a single statewide Personnel Management Information System. In parallel with these statewide systems, each agency has also developed their own stand-alone software solutions that support HR business functions that are not available on the PMIS or Central Payroll systems.

- The State does not have a statewide qualifications and competency catalogue, which would allow for competency based HR management processes. This process allows for the identification of standard definitions of skills, knowledge, and abilities and the various proficiency levels within them. These competencies can then be matched to employee, jobs, position, and location records. This facilitates

performance management, succession planning, recruitment, job and position classification, and training.

- Currently the only employee self service capability is Leave Tracking for employees in the agencies that use the Statewide Leave Tracking software. Best practice in HR/Payroll administration is to create self-service portals in all areas where the employee is the source of the information. This allows employees to maintain their own data, while significantly reducing the administrative work of the HR and Payroll staff. This allows employees to maintain their own HR, benefit, payroll information.

- Non-integrated stand-alone time and attendance/employee leave tracking systems are being used by numerous agencies. These applications do not automatically update payroll records. Best practice is for a single system solution for leave tracking that would be integrated with time collection and evaluation, payroll, and employee self service.

- The current budget systems do not provide version control that would allow agencies to develop different versions of their budget requests. If a central budget system does not provide the flexibility to allow each agency to secure versions of its own budgets, it is safe to assume that the agencies have developed budget preparation systems of their own.

- The current systems are not able to perform position control budgeting. While the budget systems provide a link to PMIS, the capability to accurately forecast salary budgets for positions is not available. Typically a budget position control capability allows the personal services budget to be developed from position and salary data stored in the integrated database.

- At the present time capital budgeting is done outside of the budget systems because the budget systems do not have the capability to support capital budgets. The budget preparation system must have the ability to project and budget revenue and expense data beyond the budget period. It is also necessary for the budget preparation system to be able to capture actual revenue and expenditure data on an inception-to-date basis to adjust the capital budget as needed.

- The NCAS does not have a specific grants management module. While procedures have been developed to help agencies track their grants by using the agency definable segments of the NCAS chart of accounts, it is not possible to do funds checking by grant. Grants can be reported by agency but there is no state level grant reporting available. NCAS has similar issues with project accounting. There is no separate project accounting module and the agencies in many cases do their project accounting outside of NCAS.

- Cost allocation is performed by the agencies outside of the NCAS system. Cost allocation functionality is not provided by the Geac package. As a result, NCAS is not able to support the agencies' cost allocation requirements. This presents issues concerning the ability to allocate direct costs by funding source and indirect costs to grants and projects. This information is essential to support grant claims and drawdowns.

- The NCAS Geac accounts receivable module has limited functionality and is currently used only by DHHS Division of Medical Assistance, the Office of Information Technology services, and the Department of Public Instruction's Textbook Warehouse. As a result, numerous agency accounts receivable subsystems are used to support the State's receivable activity along with multiple agency specific billing systems. The lack of a central accounts receivable system makes it difficult to develop statewide accounts receivable data. Further, the lack of statewide accounts receivable data hinders collection efforts and makes it difficult to develop a debt offset process.

- Although enhancements are planned ITAS currently lacks some functionality to support effective revenue collection and tax discovery. Today, best practice state, provincial and federal revenue administration agencies have enhanced their collection activities through a variety of technology, tools and techniques. In particular, they have used automated workflow and case management functionality to improve overall collection effectiveness. They use systems to identify delinquent accounts, automatically send out notices, and track taxpayer receivable information accurately and

efficiently, including payment agreements made with the taxpayer and any legal action taken, such as liens or garnishments.

- Similarly, best practice revenue organizations also utilize a variety of system tools and methods to select the best candidates for audit and for discovery of non-compliant taxpayers such as non-filers and under reporters, i.e. taxpayers with the highest likely revenue and collection yield. Identification of delinquent taxpayers is done via matching techniques. As examples, individual state non-filers are identified through a match with the IRS W-2 information or through information obtained from the DMV; while business non-filers may be identified through business registration at the Secretary of State and other information available from outside sources. DOR does have automated processes that match IRS data to ITAS, but does not have automated matches with the DMV or the Secretary of State.

1.5 System Operating Costs

Included in the table below is an estimate of the annual operation and maintenance costs for the core systems excluding the three systems in various stages of replacement and the recently implemented e-Procurement system. A number of costs are not included in the operations costs. Any costs associated with the agency's use of systems that duplicate or provide similar functionality are not included. The study identified a majority of these agency systems but did not collect any agency related costs. Infrastructure and capital costs like PCs, printers, and imaging equipment, in addition to data processing supplies and miscellaneous expenses were generally not captured. Lastly, FTE costs were captured only for personnel directly responsible for supporting the systems. FTEs associated with the use of the system (e.g. data entry, system inquiry, manual processing costs in data preparation, etc.) are not generally captured.

The next phase of this project, will examine the costs of alternate business solutions. The estimated costs below are not meant to represent the costs necessary to operate an integrated enterprise wide solution.

Summary of Core Agency Annual Maintenance and Operations Costs

	FTE Costs		Non - FTE Costs				
Core System	**Staffing - State Employees**	**Staffing - Contractors**	**Maintenance Fees / Licensing / HW & SW**	**ITS Charges**	**Training**	**Other Misc. Costs**	**Total Cost by System**
CMCS	$206,824	$23,438	$0	$24,295	$0	$89	$254,646
NCAS	$2,659,497	$504,955	$384,640	$2,409,397	$12,811	$15,475	$5,986,775
CPS	$370,997	$285,270	$0	$244,220	$990	$4,649	$906,126
DOT Payroll	$570,737	$180,000	$0	$90,000	Unknown	$5,000	$845,737
PMIS/ELTS *	$679,557	$0	$10,500	$675,000	$1,000	$0	$1,366,057
ITAS	$2,214,007	$1,576,671	$227,470	$6,407,465	$131	$238,252	$10,663,996
BPS/BRS/SCS *	$178,715	$0	$11,000	$116,500	$0	Unknown	$306,215
TOTALS	$6,880,334	$2,570,334	$633,610	$9,966,877	$14,932	$263,465	$20,329,552

* - The costs for these systems have been combined reflecting the maintenance and operations being performed by the same organizations and staff.

1.6 Conclusion

The core administrative systems of the State of North Carolina are largely mainframe legacy systems that employ hierarchical databases or indexed flat files to store data. The systems are not integrated. In some cases data is exchanged between systems through a series of batch interfaces. In other cases, the same data is manually entered into more than one system. The lack of integration often requires that the same data be entered and stored in more than one system. For example a vendor file and a valid accounting code file must be stored in both NCAS and e-Procurement. Also the current approach for BSIP is to manually enter into e-Procurement, purchase orders that have already been created in BSIP.

The lack of system integration combined with dated technology makes it very difficult for managers to generate meaningful reports. Systems of the generation represented by the State's core business systems were designed primarily to process large volumes of transactions. These systems generally do very well with editing, posting transactions, and producing reports of the data captured. However, because of the way the data is stored, it is labor intensive and costly to develop meaningful management reports. In many cases, the data for reporting is only available at a highly summarized level, because the detail data is only available in agency subsystems. This presents challenges in developing enterprise wide reports.

While the core business systems provide much of the functionality that is required by the State's central control agencies, they lack some of the functionality required by the State's operating agencies. Although NCAS is functionally rich in many areas, it does not provide sufficient functionality to support the agencies' grant, project and accounts receivable accounting requirements. In the HR function, the Employee Leave Tracking System only provides sufficient functionality for use by eight State agencies. As a result, agencies have developed their own systems to provide the functionality necessary to meet their business requirements. These agency systems range in size and complexity from PC spreadsheets to "State of the Art" COTS packages (e.g. BSIP).

While these systems provide the agencies with the functionality they require, it is not without cost. Costs include the cost to develop and implement these systems, the cost to operate and maintain these systems, and the cost to manage and reconcile the data in these systems to the data in the core systems. In the next phase of this project, the issue concerning the cost to operate multiple systems should be addressed (e.g. Is it more cost effective to operate ten agency financial systems to support grant accounting, or is it more cost effective to provide grant accounting capability in the central financial system?).

Many of the core business systems have been in use for more than twenty years. These systems have changed over time as a result of software modifications and system enhancements. Typically these modifications and enhancements are not well documented. Also the knowledge required to support and maintain these systems resides with the individuals who are rapidly approaching retirement age. As the individuals retire or otherwise move on, ongoing support of these systems will be problematic.

The fact that the core systems were developed using what is now dated technology, makes it difficult to find replacement staff with the needed skill sets. Many of the technologies that are currently supporting the core systems are no longer taught in school. Recent graduates that want to begin their information technology careers are not willing to learn the dated technologies because they feel that it diminishes their skills and reduces their marketability.

As these core systems continue to age and as the resources that support them continue to dwindle, the risk of a major system failure continues to increase. As the agency business requirements continue to be unmet by the core systems, new agency systems will continue to be developed resulting in redundant data stores, redundant data entry, and redundant maintenance and operations costs.

Because some agencies found themselves unable to support their obsolete and often fragmented systems, several have initiated projects to replace their legacy solutions. To minimize the long-term effects to a future business infrastructure enterprise solution, it is vital to finalize and establish statewide enforcement mechanisms. This effort will help to minimize any additional system fragmentation and silo development. This need has been recognized by the State and as part of the statewide Information Technology Strategy, a focus

is on the use of true enterprise solutions that use common technical service and shared technical infrastructure.

While this report provides an inventory of the core business systems and the related agency business systems and an assessment of the current status of each of the core systems, it is clear that the State should move forward with Phase 2 of the project (Develop a Blueprint for Selecting Improvement Approach) to determine viable options for implementing an integrated financial business infrastructure.

The remainder of this report provides a detailed discussion of Core System Purpose and Capabilities, Planned System Enhancements, System Interfaces, Cost Associated with Existing Systems Operation, Industry Best Practices, and Functional Gaps and Operational Risks for each of the core business systems.

2 CORE HUMAN RESOURCE AND PAYROLL SYSTEMS

2.1 Current System Environment

The State of North Carolina operates multiple payroll, time keeping, and human resource information systems in support of the State's operations. These systems have been developed under different technical architectures and are not integrated with each other. Their support requires duplicate and redundant data entry, and employs hierarchical databases or flat file structures. The majority also use technology and programming languages that are no longer in general use.

At the present time, the State of North Carolina operates thirteen payroll systems that are interfaced to a single statewide Personnel Management Information System (PMIS). In parallel with these State-wide systems, each agency has also developed their own stand-alone software solutions that support HR business functions that are not available on the PMIS or Payroll systems. Employee payroll functions are supported by the Central Payroll System for a majority of the State agencies. Nine of the smaller state universities also use the Central Payroll System to support their payroll requirements. The remaining seven state universities, along with UNC Hospitals, operate their own payroll systems. One of the universities operates a power plant which also has its own payroll system. The General Assembly, the Department of Transportation, and the State Port Authority also operate their own payroll systems.

Though it may cause difficulties integrating data for government-wide reporting, and limits the economies of scale that could be realized, it is not unusual for different branches of government to operate their own core administrative systems. While there may be reasons for these different branches to be operating separate systems, there really is no specific business reason for two executive branch agencies to be operating on different payroll systems. Best practices would see all employees paid from the same system regardless of business function. Separate systems create problems with reporting payroll data on a statewide basis. It can also lead to an employee receiving two W-2 forms from the State if the employee transferred to or from the DOT during the calendar year.

Typically among State governments, the Departments of Transportation are part of the executive branch of government and are supported by the States' payroll systems. They may, however, operate their own time and attendance systems to support the labor distribution and cost allocation processes required to support the Federal Highway Administration billing requirements. A separate DOT Payroll System is somewhat unusual therefore, the North Carolina DOT Payroll System has been included in this review.

In the subsections that follow, a discussion of the current system environment is provided for each of the core HR/Payroll systems. These systems are:

- Central Payroll
- DOT Payroll
- Employee Leave Tracking
- PMIS

2.1.1 Central Payroll System

2.1.1.1 Core System Purpose and Capabilities

Business Purpose: The CPS system performs the gross and net payroll calculation for all state agency employees not covered by one of the other twelve payroll systems. As described above, seven of the State universities, a power plant at one of the universities (ASU), UNC Hospitals, the General Assembly, the Department of Transportation, and the State Ports Authority run their own payroll systems independent of CPS.

Capabilities:

- The Central Payroll system is the largest of the payroll systems currently operating within state government. Sixty-seven agencies or units utilize the Central Payroll system to manage payroll activities for 79,000 employees.
- The Central Payroll system processing is divided into three major categories: Monthly Cycles, Mid-month cycles and Cancellation and Rewrites Cycles.
- Central Payroll processed approximately 100,000 payroll transactions each month and generated 97,000 W-2's totaling $3 billion for calendar year 2002.
- Additional functionality includes processing for: refunds, moving expenses, nurse's bonus, law enforcement allowance, education expenses, National Guard payroll, personal service contracts, student payrolls and telephone stop orders.
- The gross payroll calculation includes evaluation of employee time data that is collected by a variety of agency specific time collection systems.
- The system also interfaces with the State general ledger accounting system (NCAS) for the posting of payroll expenditure ledger distributions as well as the reconciliation of the various payroll accounts.
- The Central Payroll system utilizes a position control number to help support the monitoring of budgeted positions and to facilitate position based budgeting reporting.

Technical Platform: The Central Payroll system resides on the mainframe in the OS/390 operating system with an IMS DL1 database. The system is written in the COBOL programming language. The Central Payroll system has been in use for the past 20 years. The system was originally developed in 1982.

2.1.1.2 Planned System Enhancements

Currently there are plans to proceed with two Central Payroll system enhancements.

- Reports Redesign – conversion of all Central Payroll system reports from paper to on-line viewing
- Report Consolidation – analysis of current reports and report requests to reduce the large number of reports through report consolidation

2.1.1.3 System Interfaces

The central payroll system has several core to core system interfaces.

HR/Payroll Core System	Other Core System	Interface Type	Interface Direction	Data Description
CPS	PMIS	Manual	Send	Non-standard Payroll Transactions
CPS	PMIS	Manual	Receive	Personnel Data
CPS	NCAS	Batch	Send	Personnel Expense Distributions
CPS	RPS	Batch	Send	Misc. Payroll Data
CPS	CBS	Batch	Receive	Check Reconciliation
CPS	CBS	Batch	Send	Positive Pay

There are also several automated batch interfaces from, or to, employee benefit vendors. The vendors provide a file back to the CPS which updates the employee records with changes to deduction types and amounts. There are also interfaces to banks for employee pay direct deposits.

2.1.1.4 Current System Cost

Below are estimated annual costs for the Central Payroll System's operation and maintenance costs. General guidelines and assumptions used in gathering the cost information include:

- Costs are for the core agency supporting the system
- Costs captured include:
  - Technical system development and maintenance FTE costs
  - System support and operations FTE costs (e.g., running reports, bursting)
  - Help Desk FTE support
  - Maintenance, Licensing, and Application Service Provider (ASP) Fees
  - ITS charges for technical services (e.g., mainframe, networking)
  - Training costs to support the system
- Costs **NOT** captured unless otherwise noted include:
  - Infrastructure and capital costs like PCs, printers, imaging equipment, and plotters.
  - FTE costs associated with using the system (e.g. data entry, system inquiry, manual processing costs in data preparation, manual systems being maintained to supplement the core system. etc.)
  - Any costs from agencies outside the core agency that use the system unless it is included in the ITS charges billed to the core agency
  - Data processing supplies or miscellaneous expenses unless included in the ITS charges

If there are unique costs associated with the Operations and Support of a system the cost will be identified separately.

Central Payroll System	
Annual Operating and Maintenance Cost Approximations	
Cost Categories	**Estimated Costs**
Staffing – State Employees (Development, Maintenance, System Support, Help Desk)	$370,997
Staffing – Contractor	$285,270
Technical Services (ITS charges for Mainframe, Telecom, Networking, etc…)	$244,220
Licensing / ASP / Maintenance Fees	$0
Training	$990
Miscellaneous Expenses	$4,649
TOTAL	**$906,126**

Central Payroll System Cost Clarifications and Assumptions:

- Maintenance and operations costs provided by the Office of the State Controller and the Information Technology Expenditures Report are for the period ending June 30, 2002 and represent annual costs.

2.1.2 Department of Transportation Payroll System

2.1.2.1 Core System Purpose and Capabilities

Business Purpose: The DOT Payroll system is similar to the Central Payroll in that it performs the gross and net payroll calculation for all employees of the Department of Transportation. The DOT Payroll system updates the DOT legacy accounting system with personnel expense information and operates on a biweekly payroll frequency. This system also supports DOT's more detailed labor cost

distribution against multiple project and accounts for capital project accounting and federal highway billing needs. This functionality is not typically required by other state agencies.

Capabilities:

- Performs Gross and Net pay calculation for 15,000 employees
- Produces Disability and Leave Expense Payrolls
- Supports one day turn around for changes to business rules
- Provides Time Capture that is integrated to Cost Accounting
- Accommodates different time schedules

Technical Platform: This system resides on a mainframe using indexed VSAM files and is written in the Assembler programming language. This system uses the EasyTrieve reporting language. It has been in existence for over 30 years

2.1.2.2 System Enhancements

DOT has not identified any current system enhancement plans for the DOT Payroll system. DOT is in the process of implementing SAP as its core infrastructure platform. Once this is implemented, an evaluation will be made to implement the SAP HR suite.

2.1.2.3 System Interfaces

The DOT Payroll system will have two automated batch interfaces to the DOT BSIP system. The DOT Payroll system has the following interfaces to other core systems.

HR/Payroll Core System	Other Core System	Interface Type	Interface Direction	Data Description
DOT Payroll	PMIS	Batch	Receive	Personnel Data on New Hires, terminations, and transfers.
DOT Payroll	DOT-BSIP	Batch	Receive	Payroll Data (July 2003)
DOT Payroll	DOT-BSIP	Batch	Send	Journal Vouchers (July 2003)
DOT Payroll	RPS	Batch	Send	Employee and Employee Bank Information
DOT Payroll	CBS	Batch	Send	Employee and Employee Bank Information

2.1.2.4 Current System Cost

Below are estimated costs for the annual DOT Payroll System operation and maintenance costs. General guidelines and assumptions used in gathering the cost information include:

- Costs are for the core agency supporting the system
- Costs captured include:
  - Technical system development and maintenance FTE costs
  - System support and operations FTE costs (e.g., running reports, bursting)
  - Help Desk FTE support
  - Maintenance, Licensing, and Application Service Provider (ASP) Fees
  - ITS charges for technical services (e.g., mainframe, networking)
  - Training costs to support the system
- Costs **NOT** captured unless otherwise noted include:
  - Infrastructure and capital costs like PCs, printers, imaging equipment, and plotters.
  - FTE costs associated with using the system (e.g. data entry, system inquiry, manual processing costs in data preparation, manual systems being maintained to supplement the core system. etc.)

- Any costs from agencies outside the core agency that use the system unless it is included in the ITS charges billed to the core agency
- Data processing supplies or miscellaneous expenses unless included in the ITS charges

If there are unique costs associated with the Operations and Support of a system the cost will be identified separately.

DOT Payroll System	
Annual Operating and Maintenance Cost Approximations	
Cost Categories	**Estimated Costs**
Staffing – State Employees (Development, Maintenance, System Support, Help Desk)	$570,737
Staffing – Contractor	$180,000
Technical Services (ITS charges for Mainframe, Telecom, Networking, etc…)	$90,000
Licensing / ASP / Maintenance Fees	$0
Training	Unknown
Miscellaneous Expenses	$5,000
TOTAL	**$845,737**

DOT Payroll Cost Clarifications and Assumptions:

- Maintenance and operations costs provided by the Department of Transportation and represent annual costs.
- State employee costs include benefits calculated at 20% of salary.
- State employee costs include 3 vacant clerk positions.
- Training costs were not identified but are assumed to be minimal.

2.1.3 Employee Leave Tracking System

2.1.3.1 Core System Purpose and Capabilities

Business Purpose: The Employee Leave Tracking System was developed approximately five years ago for specific agency use. The purpose of the system is to capture time and attendance information to support the payroll process. Not all Agencies use this system and it is not integrated with Central Payroll. The Agencies who do not use this application maintain the data on their own stand alone applications or on paper files. The Employee Leave Tracking system is used, or is planned for use, by the following agencies:

- OSP
- OSC
- Budget Office
- Governor's Office
- Department of Justice
- Department of Juvenile Justice
- Department of Labor
- Secretary of State

Capabilities:

- This system permits users to enter their leave time via an on-line self service system.
- This application tracks hours worked plus vacation, sick time, and other leave balances whose time is collected on an hourly basis.

At the present time the system accommodates between 1,000 and 1,500 users. Over the next six months it is expected that the number of users will increase to approximately 3,000.

Technical Platform: The system was developed using web enabled DB2, J2EE Java and MQ Series.

2.1.3.2 System Enhancements

There are current plans to develop batched hard copy reports. Reports are currently provided online and on demand only.

2.1.3.3 System Interfaces

The Employee Leave Tracking System is a module of PMIS and shares time and leave data through the use of middleware.

HR/Payroll Core System	Other Core System	Interface Type	Interface Direction	Data Description
ELTS	PMIS	Integrated using middleware	Send	Time & Leave Data

2.1.3.4 Current System Cost

Included in current system cost for PMIS

2.1.4 Personnel Management Information System (PMIS)

2.1.4.1 Core System Purpose and Capabilities

Business Purpose: This system is the main Human Resource system for State employees. PMIS provides a centralized data repository for those personnel records relating to State of North Carolina employees. It maintains standard employee and position data such as hire date, classification, position, demographic information, organizational assignment, salary information, employment status, and grievance information.

Capabilities

- PMIS has approximately 3000 users with representation in every state agency/institution's personnel offices.
- PMIS accommodates approximately 1 million to 1,250,000 on-line transactions/queries per month.
- Provides for agency electronic forms processing.
- PMIS provides approximately 1000 hardcopy report requests/month, many handled by the ZEKE automated scheduler.
- PMIS provides complete position and employee histories dating back to 1980.
- PMIS provides document-imaging files (Employee Records) contain approximately one million records (dating back to 1990).
- PMIS provides 25 major on-line files containing approximately 30 million data records.
- PMIS provides approximately 80 on-line queries that allow users to set multiple variables and filters.
- PMIS is automatically updated from personnel action forms entered by the agencies.
- PMIS allows agencies to define the level of detail for their personnel action forms. Typically agencies select agency and HR group.
- PMIS generates 300 separate downloads of system data a month to about half of the agencies to satisfy agency-specific reporting needs.

Agencies are required to use PMIS for transactions that affect Budget and Payroll through PMIS. All other functions of PMIS are optional and have been developed in response to user requests.

Technical Platform: This system resides on a mainframe IMS/DB2 database (The IMS tables are gradually being migrated to DB2) and is written in the COBOL programming language. PMIS has been in use for over 25 years.

2.1.4.2 System Enhancements

Current PMIS system enhancement plans include:

- Employee Overpayment System – identify former employees who owe the State money
- On-line Applicant Tracking – subsystem to track applicants on-line
- Upgrade from IMS to DB2 – ongoing effort
- PMIS – ITS Bill Automation – automate PMIS costing by agency for chargebacks
- Web Enabled PMIS – develop additional employee self-service applications
- Agency/University Rollout – continue rollout of electronic forms

2.1.4.3 System Interfaces

PMIS includes several Core to Core system interfaces as follows:

HR/Payroll Core System	Other Core System	Interface Type	Interface Direction	Data Description
PMIS	BPS	Batch	Receive	Funded/Unfunded New Positions
PMIS	BRS	Batch	Send	Approved New Positions
PMIS	CPS	Manual	Send	Personnel Data
PMIS	CPS	Manual	Receive	Non-standard Payroll Transactions
PMIS	DOT	Batch	Send	Personnel Data
PMIS	ELTS	Batch	Receive	Time & Leave Data
PMIS	NCAS	Batch	Receive	NCAS Account Validation
PMIS	NCAS	Batch	Send	Personnel Data
PMIS	SCS	Batch	Receive	Salary Reserve
PMIS	SCS	Batch	Send	Position Salaries & Counts
PMIS	SCS	Batch	Send	Salary Changes

2.1.4.4 Current System Cost

Below are estimated annual costs for the PMIS System operation and maintenance costs. This includes the costs for the ELTS because maintenance and operations are performed by the same organizations and staff. General guidelines and assumptions used in gathering the cost information include:

- Costs are for the core agency supporting the system
- Costs captured include:
  - Technical system development and maintenance FTE costs
  - System support and operations FTE costs (e.g., running reports, bursting)
  - Help Desk FTE support
  - Maintenance, Licensing, and Application Service Provider (ASP) Fees
  - ITS charges for technical services (e.g., mainframe, networking)
  - Training costs to support the system
- Costs **NOT** captured unless otherwise noted include:
  - Infrastructure and capital costs like PCs, printers, imaging equipment, and plotters.
  - FTE costs associated with using the system (e.g. data entry, system inquiry, manual processing costs in data preparation, manual systems being maintained to supplement the core system. etc.)
  - Any costs from agencies outside the core agency that use the system unless it is included in the ITS charges billed to the core agency

- Data processing supplies or miscellaneous expenses unless included in the ITS charges

If there are unique costs associated with the Operations and Support of a system the cost will be identified separately.

PMIS/ELTS	
Annual Operating and Maintenance Cost Approximations	
Cost Categories	**Estimated Costs**
Staffing – State Employees (Development, Maintenance, System Support, Help Desk)	$679,557
Staffing – Contractor	$0
Technical Services (ITS charges for Mainframe, Telecom, Networking, etc…)	$675,000
Licensing / ASP / Maintenance Fees	$10,500
Training	$1,000
Miscellaneous Expenses	$0
TOTAL	**$1,366,057**

PMIS/ELTS Cost Clarifications and Assumptions:

- Maintenance and operations costs provided by the Office of State Personnel and represent annual costs.
- Training, Miscellaneous Expenses, Licensing, ASP, and Maintenance Fees were not provided but could exist.
- PMIS/ELTS ITS charges are expected to drop by approximately $25,000 next year.
- The Licensing Costs include a one time $7,500 licensing fee.

2.2 Best Practice Business Requirements

2.2.1 Best Practices

During the past few years the State of North Carolina has commissioned a number of reports that have explored the current administrative system environment and offered recommendations for change. The December, 2002 **Governor's Commission to Promote Government Efficiency and Savings on State Spending** included the following goals that are particularly relevant for Personnel management and this report:

1. An enterprise-wide personnel system that gives managers flexibility, rewards employees for high performance and allows the State to compete in the marketplace.

2. The use of information technology that takes advantage of economies of scale and reduces the cost of doing business.

4. Administrative functions are staffed at appropriate levels.

6. Agencies perform their core mission well. Nothing else.

The Commission considered it critical to "maximize the use of technology to reduce errors and improve productivity" and "reduce duplicative personnel systems" if the State is to meet these goals. This report focuses on these goals and recommendations. It expands on the specific human resource and payroll functionality that would make maximum use of technology to gain maximum effectiveness and efficiency. Underlying the discussion of best practices in Human Resource management is the vision of an integrated system solution that would greatly expand the functionality and capabilities of the existing systems and provide a single "back office" administrative system.

The HR and Payroll systems that are available today differ greatly from the systems currently used by the State of North Carolina. Unlike the PMIS and Payroll systems, they are not simply data repositories. They are transactional systems that could support all of the State's current and recommended business functions of Human Resource management as well as Payroll and Time administration. They are designed to allow employees to update and maintain much of their own administrative data thus freeing up HR and Payroll staff to complete more strategic and value added tasks.

Today's administrative systems support a greater degree of integration than previously available. This real time integration exists, not only between the time collection, payroll, and HR functions, but also through to the financial and accounting functions. Data is entered once and shared by any other application that is linked with the database. For example, updating an employee record for the allocation of state property also updates the inventory control records. Entering hiring information for new employees also updates their payroll records. Unlike North Carolina's current (and separate) systems, no interfaces are required between HR, payroll and time capture systems. They are all applications sharing a single database.

The current generations of human resource administrative systems are based on competency based personnel management. All positions, jobs, employees, applicants, training courses, and recruitment requisitions have competency (qualifications, or skills and abilities) requirements as part of their records. This facilitates applicant screening to be done automatically by the system; it allows Managers to search the employee data base for employees who fit specific skill requirements; it allows for competency gap reporting for succession and career planning; and, it allows managers to match employees to training programs that would fill a competency gap.

2.2.2 Business Requirements

The following section contains best practice business requirements for each of the major functions being reviewed. The summaries also contain gaps identified between the current systems and the Best Practice Requirement.

Personnel Actions

The current systems require multiple end users to enter data into various systems, at various locations and times to complete a single transaction. The opportunity exists for a replacement system that could be configured to present a single end user with all the screens and data fields necessary to complete the entire transaction. It would also only present the elements required for the specific transaction. This would ensure that all relevant data is entered in the appropriate sequence without any duplication of effort. It would also remove the need for individual interpretation of business rules and policies. This would reduce the skill sets and knowledge required by the data entry staff. The Personnel actions would include:

- Hires (part time, full time, seasonal, casual. Temporary, etc.)
- Rehires
- Separations including retirements and involuntary terminations and layoffs
- Leaves (Medical, Personal, FMLA)
- Transfers
- Inter-Governmental Exchange
- Promotions
- Demotions
- Reclassifications

Exit Interviews

Retention data is not currently kept on a single government-wide information system and the Office of Personnel is unable to report on statewide retention and attrition issues. Capturing exit interview results on-line would allow for trend analysis and the determination of patterns of behavior among types of employees and/or kinds of work.

Competency based HR management

The State does not have a statewide qualifications and competency catalogue which would allow for competency based HR management processes. This process allows for the identification of standard definitions of skills, knowledge, and abilities and the various proficiency levels within them. These competencies can then be matched to employee, jobs, position, and location records. This facilitates performance management, succession planning, recruitment, job and position classification, and training.

Employee Self Service

Currently the only employee self service capability is Leave Tracking for employees in the Agencies that use the State-wide Leave Tracking software. Best practice in HR/Payroll administration is to create self service portals in all areas where the employee is the source of the information. This allows the employee to maintain their own data, while significantly reducing the administrative work of the HR and Payroll staff. The most common functions of employee self service includes:

- Demographic changes
- Benefit eligibility changes
- Address changes
- Employment verification (for bank loans and mortgages)
- Job applications
- Leave requests
- Training requests and scheduling
- Time entry
- Messaging to employees such as performance review dates

Workforce Analytics

Generating trend analysis and HR management reports is very difficult and time consuming in the present systems' environment. The limitations are due to the lack of an integrated database or an ad-hoc reporting tool. A number of pre-defined reports are offered by PMIS. The current situation requires that end users spend unnecessary time gathering data from multiple sources, formatting the data, and then manipulating the data to produce state-wide analytical management reports. The time required to complete the sorting and summarizing of the information often means that the data in the reports is no longer up to date.

Employee Complaint Management

The existing systems capture some but not all of the data required to analyze trends and patterns of employee behavior in the areas of employee complaints and grievances. The current systems also do not allow the Central Personnel Office to report on complaints that are resolved at the agency level. The types of data that would allow for better planning and programs to reduce the number and types of complaint include:

- Employee Grievances and investigations
- Grievance dispositions and dates
- Status of multiple appeals and dates
- Settlement agreements

Job and Salary Surveys
Currently, the State does not have a complete on-line source of job and salary survey data. If it did, the effort required for competitive job pricing and salary comparisons to other public and private sector employers would be greatly reduced. Best practice solutions include the following types of data:

- Job survey results
- Job compensation comparison analysis
- Benchmark jobs and positions
- External salary survey data by classification

Recruitment
Currently, each Agency maintains its own stand-alone and applicant tracking systems. This has led to a great deal of duplication of effort by both state employees and job applicants. There are no economies of scale and no sharing of information across the various Agencies. Best practices in this area include:

- Web based applications
- Applicant tracking
- Candidate to position competency/qualification matching

Organizational Management
Organizational charts cannot be directly generated by PMIS and it is not currently possible to generate ad-hoc organization charts, or to generate multiple proposed or planned organizational charts to assist with organizational or budgetary planning.

Job Analysis
Best practice recommends on-line classification descriptions and position evaluations to ensure enterprise wide consistency of evaluations and comparisons of jobs. Organizations that don't provide online classification descriptions leave themselves open to employee grievances based on different pay for the same work. By making the job classification data available online agencies can identify benchmark job descriptions and salary ranges.

Performance Management
PMIS records performance review codes and runs annual reports. There is limited ability to maintain other performance related data. The lack of state-wide standard competency definitions makes it very difficult to match current employee qualifications or competencies to those required by their planned career path. It also makes it difficult to identify specific training that would assist the employee in reaching their career goals.

Compensation Management
Best practice government organizations are moving away from longevity based pay to performance based pay. Performance based pay is intended to reward the best performers and includes bonuses, merit increases, and commissions. The current systems are able to support standard salary range method of pay, but do not support variable compensation (e.g. performance based pay).

Budget Support
Best practice in budget support includes position budget control systems providing the capability to project future personal services costs based on filled and partially filled positions. These systems project personal services costs for partially filled positions and vacant positions that may be filled in the future, in addition to merit increases, cost of living increases, and the savings for vacant positions that are not going to be filled. These systems also support "what-if" modeling (e.g., impact to budget of across the board 5% increase or what the impact is on the budget if we don't fill vacant positions for the next 6 months, etc.). The current system does not allow for personnel cost planning and the development of potential cost scenarios.

Payroll Processing
At present, there are two large payroll systems in use by the central administrative agencies. The main reason for this is that the Central Payroll System does not support a biweekly pay frequency

and the Department of Transportation requires this. The current payroll processes are also very time consuming. Best practice would also required integration between payroll and time collection and evaluation. It would also include employee self service options for bank deposit details and taxation options.

Time Collection and Management / Leave Tracking
The current process is very time-consuming and open to individual interpretation of rules and policies. Non-integrated stand-alone time and attendance/employee leave tracking systems are being used by numerous agencies. These stand-alone systems provide no integration between time collection and payroll, and lack employee self service time sheet options. Best practice would require a statewide integrated time capture system that would include the following capabilities:

- A single system solution for leave tracking that would be integrated with time collection and evaluation, payroll, and employee self service.
- Labor cost distribution (allocation of hours across multiple general ledger accounts).
- Integrated shift planning and resource availability tracking.
- Automatic update of payroll records.

Employee Benefit Administration
The current system is limited in its support of employee benefits' administration. Employee benefit systems are spread all over state government and lack a single point of administration. Retirement, health, and disability benefits are housed in three different agencies. Non-portable supplemental benefits are administered at each agency. The following best practices are missing in employee benefit administration:

- Eligibility rules that are configured in the system and do not require individual interpretation.
- Employee self service portals that would allow employees to update their own benefit coverage and dependent information.
- Full integration between payroll, and accounts payable and receivable.
- Employee benefit expenditure data like unemployment insurance and workers compensation benefits currently captured through separate organizations.

Incident, Accident Tracking
Best practices include the tracking, integration, and reporting of the following types of information:

- Occupational health and safety job requirements and employee qualifications.
- Workers' Compensation claims, appeals and dollar amounts .
- Disability payment eligibility and integration with payroll.
- Accident and incident investigation information.
- Employee rehabilitation assignments.

None of the State systems provide an integrated solution for this function. Some systems do have small separate databases to maintain information n this area.

Training Administration
Best practices in the areas of employee training and development include self service portals for training requests and applications, course catalogues, and course and instructor evaluations. A best practice solution would also facilitate the tracking of educational resources (rooms, equipment and trainers), monitoring of costs, monitoring of dates for expiration of critical employee qualifications requirements, and integration with employee performance management and career development. The State has no systems with this functionality. Another best practice is to incorporate e-learning into the training model.

Summary
The State requires a full suite of integrated enterprise HR/payroll solutions to support and enforce standardized HR process and procedures as described in the best practices listed above. In addition, the current desperate HR/payroll systems are not able to support statewide reporting requirements. These reporting requirements can be easily satisfied through integrated enterprise solution with the appropriate reporting and query tools.

2.3 System Gaps and Risks

The following section of the document provides a discussion of the gaps, continued viability of the existing systems and the risks associated with maintaining the current system and the alternatives to the current system.

2.3.1 Functional Gaps

The existing systems do a good job of maintaining employee and position data but are not designed to use this data to complete HR business functions such as Career Development, Performance Management, Applicant Tracking, Employee Grievance and Complaint Tracking, Training, Occupational Health and Safety, Budget Cost Planning, or Funds Based Position Management.

Agencies have individually developed stand-alone applications to assist them with the HR business functions. For example, many agencies have developed Applicant Tracking systems. This has meant that none of these systems share data and a great deal of duplicate work occurs. In our example of Applicant Tracking, duplicate data collection is required by each agency and applicants must separately apply to each agency for the same kind of job.

The lack of a single database that maintains all the information required to complete the HR and Payroll business functions also contributes to the State's inability to complete manpower analytics such as trend analysis, skill inventories, State-wide employee costs, and budget projections in a timely and effective manner.

The existing systems are not integrated with each other in a single relational database. This means that the same information must be entered into each separate application. The use of a single relational database would eliminate the current process of exchanging data between applications using interfaces.

Another major functional gap that has resulted from the existing systems' environment is a scarcity of employee self-service portals. Providing internet browser-based access to the system by employees allows them to update their own records in areas such as demographic changes, benefit dependent and beneficiary updates, and voluntary payroll deductions. It also allows employees to make leave and training requests on-line, as well as providing them with on-line pay statements and employment verifications. Employee self-service reduces HR/Payroll administrative costs, improves service levels for employees and managers, eliminates paper transaction processing, and frees up HR staff to do more work in the areas of policy development, personnel analytical and statistical reporting, manpower planning, succession planning, performance management, and employee recruitment and retention. The transfer of administrative tasks from the HR and Payroll staff to the employees themselves provides the opportunity for HR to become more focused on strategic issues and organizational support.

As previously stated, the Department of Transportation operates its own payroll system. Unlike the Colleges and Universities, DOT is not a sponsored research facility. Unlike the General Assembly, DOT is not a separate branch of the government. DOT operates a separate payroll system for the following reasons:

- DOT employees are paid on a bi-weekly pay frequency. The Central Payroll System cannot accommodate bi-weekly pay.
- DOT has a very detailed and complex labor distribution and cost allocation process that must be followed to support project accounting and FHWA billing requirements.

While there may be reasons for the Colleges and Universities and the General Assembly to have separate systems, there really is no specific business reason for two executive branch agencies to be operating on different payroll systems. Best practices would see all employees paid from the same system regardless of business function. Separate systems create problems with reporting payroll data on a statewide basis. It can also lead to an employee receiving two W-2 forms from the State if the employee transferred to or from the DOT during the calendar year.

Other states have accommodated the DOT requirements for more detailed labor distribution and cost allocation requirements by providing the DOT a more detailed time and attendance application or by allowing the DOT to calculate gross payroll and interfacing that data to the central payroll system. Either of these approaches allows all executive branch employees to be paid by the same system. This facilitates statewide reporting of payroll data and eliminates the need to produce multiple W-2's for the same employee.

2.3.2 Risk Assessment

The risks in leaving the HR/Payroll systems in their current state are real and pressing. The systems are based on out-of-date technology that will become more and more difficult to support as time goes by without further investment. The technology does not comply with the State's IT strategy for either hardware or software solutions. It is currently supported by a very small group of IT and HR/Payroll professionals and data entry clerks, many close to retirement. Replacing the existing staff will become more difficult as potential replacement staff also reach retirement age and are not replaced by a younger generation. The lack of vendor support for the older operating systems/databases is also a major issue.

There is a growing risk that individual Agencies will continue to independently implement software applications based on new technologies and software solutions (e.g. DOT is considering a new SAP HR application). The State does have an Information Technology strategy that requires new systems to be developed with "Open" system architectures, but it will still be difficult to link these new systems with current core administrative systems. The separate development of administrative system also means that the State as a whole will incur the cost of operating and maintaining redundant systems. This will include the cost of multiple IT support organizations, each supporting a different hardware and software environment.

With the exception of the Leave Tracking System, the systems described in this report rely heavily on manual intervention for data entry, redundant data entry, time consuming and inefficient reporting and analysis. In general the trend in the public sector in recent years has been a reduction through attrition of the data entry and support staff required to support HR/Payroll systems. In essence States are being asked to do more with less. If this trend continues and these applications are not moved to more current technology platforms, eventually the State will not be able to provide the level of support required to operate these systems at current service levels.

2.3.2.1 Central Payroll System

Central Payroll System support staff has done an excellent job of maintaining a rapidly aging and outdated system. They support the vision outlined in the State's Efficiency Report, but remain convinced that the best solution is to put resources into the existing systems rather than investing resources into replacement options that may not bring quick returns on that investment. Their perspective that the best solution for the State is to continue maintaining the PMIS and Central Payroll systems while investing to enhance their functionality was clear from the project interviews and surveys.

The support group was asked about the viability of a Payroll system that is based on dated technology that is no longer in widespread use, or taught to the current generation of IT professionals. The Central Payroll leadership staff agreed that it is an area of concern. This concern

is primarily due to the fact that the current system support team is nearing retirement age. They suggested that the State could find IT programmers with the necessary skill sets if enough effort was made to recruit them. Another alternative suggested was to hire directly from universities or colleges and train a younger generation of IT professionals in these dated technologies.

The support group expressed the concern that there is a lot of room for human error in the current business processes. For example, if an employee doesn't fill out the correct form and submit it to the correct place (e.g., benefits forms), that employee's pay will not be processed correctly. There are also incidences where employees have left state government and agencies have erroneously failed to remove the employee from the payroll system. No system checks currently exist to alleviate these problems.

End-users of Central Payroll that we interviewed all expressed the concern that the system was not fully integrated; only interfaced with either PMIS or the General Ledger. This lack of integration causes redundant or duplicate data entry to occur. There was also a wide spread concern that it would become more and more difficult to support the payroll system as the current staff retired. Reductions in the number of IT support staff in Central Payroll has also led to the concern that Central Payroll does not have the ability to adapt to new requirements in a rapid and efficient manner. An employee from the Department of Correction who was interviewed provided the following example:

It took the Central Payroll group 6 months to change the weekend and holiday pay supplement from 50% of regular pay to 75% for correction officers.

The system is not supported by a software vendor. All Federal and State legislative, regulatory, and taxation changes must be programmed by the existing support staff into the system rather than updated by the vendor through regular software updates. This could lead to errors in processing which may only become evident during payroll parallel testing with the implemented changes. Another general concern of end-users is the lack of ad-hoc reporting capabilities.

The Central Payroll system is not currently able to support many Public Sector "best practices". It is not integrated with the HR systems which have resulted in duplicate data entry, a higher possibility of data error, and parallel system support teams. It is also not integrated with the Budget systems and therefore cannot support budget cost planning, or funds-based position management. The Central Payroll system is not integrated with a single employee time capture and evaluation system. Each agency is responsible for its own time capture system. This has resulted in a large amount of individual interpretation of the payment of time worked. The current design of the system treats each agency as separate employment entities. When a State employee transfers from one agency to another, that person's record is deleted from one agency record and added to another agency record as a new employee. When transfers occur, the deductions, etc., for the month in which the employee transfers are put into a one-time pay file and then deleted at the end of the transaction. Finally, CPS does not allow for a web-based employee self-service portal where staff can update their own demographic, taxation, and voluntary deduction information.

2.3.2.2 Personnel Management Information System

Similar to CPS, the PMIS support group has also done an excellent job maintaining this system. It is apparent that they have also worked diligently to update its capabilities in the face of budget reductions. They believe that there are no limitations to what could be developed in the system given adequate time and resources. The PMIS support staff indicated that they are especially proud of the service and support levels that they are able to provide to end-users. They felt that a major benefit of PMIS is that the employee information contained within the system is very accurate and data integrity is high.

Through subsequent interviews with PMIS end-users it became evident that although most are pleased with the commitment and efficiency of the PMIS group, Agencies are all independently creating their own software solutions for business processes that are not supported by PMIS. According to an individual that was interviewed from the Department of Corrections, the existing core

systems are doing a good job of maintaining position and employee data but do no support processes such as performance management and application tracking. This is seen as causing duplication of effort and limits the benefits that can be reached through economies of scale.

PMIS has over eighty predefined reports which allow users to sort and filter the data elements. Some users also receive a regular download of data which they upload into their own database software so that they may create reports that are not offered by PMIS. There is no ad-hoc reporting tool for PMIS and one result of this is the decentralization of information reporting and difficulty preparing state-wide management reports. The PMIS system faces technology issues similar to those faced by the Central Payroll System. For example, PMIS also has older technologies maintained by a support staff close to retirement.

2.3.2.3 Employee Leave Tracking System

The Employee Leave Tracking System is a relatively new system, originally developed for use in OSP, and then enhanced so that other State Agencies could use it. Currently, there are between 1,000 and 1,500 users, with the expectation that 3,000 users should be active within the next 6 months.

This application is built on current technology. It is a web-based system, written in Java, using a J2EE application server. It uses IBM MQ Series middleware to access the mainframe DB2 RDBMS. The system tracks hours worked and the vacation, sick, and leave balances for State employees whose time is tracked on an hourly basis. These balances can be accessed by employees and supervisors via a Web portal.

Annual vacation/sick leave balance reports are generated for the agencies. This is a feature that most agencies like because they have to conduct a manual, labor-intensive process at year-end if they are not provided this report by the Leave Tracking System.

The big issue for this system is that many Agencies have developed their own solutions to track leave balances and entitlements. Only the following groups have indicated that they will be using the State's Leave Tracking System:

- OSP
- OSC
- State Budget Office
- Governor's Office
- Department of Justice
- Department of Juvenile Justice (DJJ)
- Department of Labor Staff
- Office of the Secretary of State

According to a staff member of OSP, the problem with getting total buy-in from all of the agencies is that some of the larger agencies do not feel that the team at OSP has the capability to support them.

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3 CORE BUDGET SYSTEMS

3.1 Current System Environment

At the present time the State's Core Budget Systems include several systems as follows:

- ✓ Budget Preparation System (BPS)
- ✓ Budget Revision System (BRS)
- ✓ Salary Control System (SCS)

Each of these systems support components of the overall budget function. To some extent these systems have been developed as part of an overall strategy to support the State's budget processes or they have been developed in response to specific requirements (e.g. position control). In any case, these systems are used separately and in concert to help the State achieve its budget management goals and objectives.

3.1.1 Budget System (BPS, BRS, SCS)

3.1.1.1 Core System Purpose and Capabilities

Business Purpose: The budget systems consist of three modules: Budget Preparation, Budget Revision, and Salary Control. These systems are used to prepare the Governor's continuation budget for the Legislature, to certify the Legislature's approved budget, to process revisions to the budget, and to monitor annual salary obligations. All state departments and universities use these on-line systems on a regular basis. The certified budget database for the 2001-2003 biennium consists of 300,000 transactions which show in detail how each account evolved from the previous biennial budget. There are eight biennial budgets available on line at this time. There are about 8000 budget revisions a year processed with daily interaction between the State budget analysts and agency budget personnel. Budget revision documents for the past fifteen years are available on-line. About forty agencies use the systems to monitor their salary obligations in PMIS as compared with the annual authorized budget for the current year. The salary control functions use the electronic personal forms and budget forms on a daily basis on-line.

In 1988 the on-line BPS was implemented to support the development of the State's biennial budget. Agencies are given budget guidance that describes the overall economic goals of the budget and the budget development calendar. Agencies enter their budget requests into BPS on-line in accordance with the budget guidance. Actual expenditure to date information is loaded into BPS through a batch interface with NCAS. The Office of State Budget Management (OSBM) makes its adjustments to the agency budget requests and develops the Governor's budget. The Governors budget is submitted to the Legislature for review and approval. The Governor's budget is submitted to the Legislature in "hard copy" only. The Legislature has its own budget development process that it uses to develop the final approved State Budget. The Legislative budget is developed at a summary level.

The State Budget passed by the Legislature is submitted to OSBM in "hard copy" reflecting summary level budget adjustments. OSBM enters line-item detail budget adjustments into BPS. The certified budget for the first year of the biennium is then entered into NCAS through an automated interface from BPS. At the conclusion of year one, BPS passes the certified budget including revisions for the second year of the biennium to NCAS. This interface provides transactions at the lowest level of accounting detail to NCAS.

The BRS was developed in 1985 for agencies to make revisions to the certified budget. Agencies are able to request budget revisions on-line on a daily basis. If the budget revision is created at the detail level, the system automatically summarizes line items up to the certified fund/object level allowing the revision to be viewed at either level. The budget revision process has very specific and stringent rules with regard to budget revision approval. BRS updates BPS, NCAS, DOT-BSIP, PMIS, and CMCS with budget revision, budget position, and budget code transfer information.

OSBM is also responsible for maintaining information about positions and budgeted salaries and ensuring that the budget for salaries is not overspent on an annual basis as well as on an actual cash basis. The Salary Control System brings together all budget and personnel transactions that affect salaries and position counts to report the annual obligation and show annual salary reserve generated or consumed by these changes. Essentially SCS performs a type of position control function. As budget revisions are requested, SCS is used to determine the availability of budget funds for the position in question. SCS also determines the salary reserve (difference between budgeted salary and actual salary).

Capabilities:

- ✓ BPS provides on-line access (browser based or terminal emulation) to approximately 300 agency and OSBM personnel. This access allows the users to enter and adjust budget requests up to the time the budget is finalized and submitted to the Legislature
- ✓ BPS updates NCAS with the certified budget
- ✓ BPS also provides prior period actual expenditure data for use in budget preparation
- ✓ BPS provides public access via the internet
- ✓ BRS provides on-line access to agency and OSBM users via the internet and terminal emulation
- ✓ BRS processes approximately 8,000 budget revisions each year
- ✓ BRS interfaces with NCAS and SCS to provide budget revision data
- ✓ SCS provides budget revision data to PMIS

Technical Platform: The core budget systems reside on the mainframe in the OS/390 operating system with an IMS DL1 database. The systems are written in COBOL. BPS also provides internet access for both system users and the public at large. The browser based component of BPS was built using HTML and the Shadow Web Server (by Neon Systems) as the web server from the mainframe. It interfaces with IMS as an Advanced Program-to-Program Communication (APPC). The Oracle RDBMS is also used for data on the Solaris operating system (Sun UNIX). The three budget systems reviewed have been in use for the past 15 years.

3.1.1.2 Planned System Enhancements

Currently there are plans to proceed with two budget system enhancements as follows:

- ✓ A web based solution for budget allotments is currently being developed. This solution is expected to be completed and in production by July 2003.
- ✓ Provide web functionality to all of BPS, BRS, and SCS as time permits.

3.1.1.3 System Interfaces

The Budget Preparation System, Budget Revision System and the Salary Control System have multiple interfaces with other core systems:

Financial Core System	Other Core System	Interface Type	Interface Direction	Data Description
BPS	NCAS	Batch	Send	Certified Budget
BPS	NCAS	Batch	Receive	Year End Actuals
BPS	DOT-BSIP	Batch	Send	Certified Budget (Not Yet Developed)
BPS	BRS	Batch	Send	Certified Budget
BPS	PMIS	Batch	Send	Funded/Unfunded New Positions
BPS	SCS	Batch	Send	Budgeted Salaries
BPS	BRS	Batch	Receive	Budget Revisions
BRS	BPS	Batch	Send	Budget Revisions
BRS	BPS	Batch	Receive	Certified Budget
BRS	NCAS	Batch	Receive	NCAS Account Validation
BRS	NCAS	Batch	Send	Budget Revisions
BRS	DOT-BSIP	Batch	Receive	Budget Revisions (Not Yet Developed)
BRS	PMIS	Batch	Receive	Approved New Positions
BRS	SCS	Batch	Send	Budgeted Salary Revisions
SCS	BRS	Batch	Receive	Budgeted Salary Revisions
SCS	BPS	Batch	Receive	Budgeted Salaries
SCS	PMIS	Batch	Receive	Position Salaries & Counts
SCS	PMIS	Batch	Receive	Salary Changes
SCS	PMIS	Batch	Send	Salary Reserve

3.1.1.4 Current System Cost

Below are estimated costs for the annual BPS, BRS, and SCS operation and maintenance costs. The three systems are maintained by the same personnel within the Office of State Budget and Management and therefore the costs are captured together. General guidelines and assumptions used in gathering the cost information include:

- ✓ Costs are for the core agency supporting the system
- ✓ Costs captured include:
  - ✓ Technical system development and maintenance FTE costs
  - ✓ System support and operations FTE costs (e.g., running reports, bursting)
  - ✓ Help Desk FTE support
  - ✓ Maintenance, Licensing, and Application Service Provider (ASP) Fees
  - ✓ ITS charges for technical services (e.g., mainframe, networking)
  - ✓ Training costs to support the system
- ✓ Costs **NOT** captured unless otherwise noted include:
  - ✓ Infrastructure and capital costs like PCs, printers, imaging equipment, and plotters
  - ✓ FTE costs associated with using the system (e.g. data entry, system inquiry, manual processing costs in data preparation, manual systems being maintained to supplement the core system. etc.)
  - ✓ Any costs from agencies outside the core agency that use the system unless it is included in the ITS charges billed to the core agency
  - ✓ Data processing supplies or miscellaneous expenses unless included in the ITS charges

If there are unique costs associated with the Operations and Support of a system the cost will be identified separately.

Budget Preparation System, Budget Revision System, & Salary Control System	
Annual Operating and Maintenance Cost Approximations	
Cost Categories	**Estimated Costs**
Staffing – State Employees (Development, Maintenance, System Support, Help Desk)	$178,715
Staffing – Contractor	$0
Technical Services (ITS charges for Mainframe, Telecom, Networking, etc…)	$116,500
Licensing / ASP / Maintenance Fees	$11,000
Training	$0
TOTAL	**$306,215**

BPS, BRS, & SCS Cost Clarifications and Assumptions:

- ✓ Maintenance and operations costs provided by the Office of Management and Budget and represent costs for the 1 year period July 01 – June 02 with the addition of $5,000 added to ITS charges to compensate for the 2nd year of the Biennial budget where the ITS costs will be $10,000 higher. The cost is being split between the two years.
- ✓ Two of the three FTE's identified as supporting these systems are from a pool of similar resources. To approximate the State staffing costs their average compensation was used in the calculation.
- ✓ A "$0" indicates that no costs were expended in a category. "Unknown" means the data was not available.

3.2 Best Practice Business Requirements

3.2.1 Best Practices Budget System

The Budget Preparation systems that are available in the market today differ significantly from the systems currently used by the State of North Carolina. They are not simply data repositories. They are transactional systems that support most if not all of the budget preparation business functions. These systems support a fully integrated budget preparation process. They support both top down and bottom up budgeting. They provide for version control, include automated workflow, and are fully integrated with other core systems including financial and human resources.

These systems support position control budgeting, "what if" modeling and multi-level budgetary fund control. Budget Preparation systems available today allow agencies to define and build operating budgets at levels of detail below that of the appropriation line item. The new systems also provide the ability to develop different types of budgets for example:

- ✓ Continuation Budget – a percentage change from prior period budget or actual (97% of prior period actuals).
- ✓ Zero Based Budget – starts with a zero cost assumption and builds each budget item based on program/business requirements.
- ✓ Position Control Budgeting – projects salary cost based on authorized positions. Each position has a dollar value or range of dollar values associated with it. The system accounts for vacancies and partially filled positions along with merit and cost of living increases.

- ✓ Capital Budget – provides the ability to develop budgets for capital projects that transcend fiscal years. These systems also provide the capability to track the funding source (bond funds, grants, local share, etc.) for capital budgets.
- ✓ Revenue Budget – provide the ability to budget anticipated revenue for State revenues (e.g. taxes, fees, etc.) and grant revenues.

Typically states that use these types of budget systems employ some combination of these budget methods. For example the State builds projected personal services cost using the position control budget function, budgets existing programs using the continuation budget function and budgets new programs using the zero based budget function.

3.2.2 Business Requirements

The budget function includes all of the activities required to prepare and maintain the State's operating and capital budgets. Business requirements have been identified for each of these activities from the initial budget guidance through the enactment of appropriations. The budget business requirements also include the activities necessary to revise and supplement appropriations and allotments. The detailed budget business requirements are listed in the Appendix of this document. In this subsection a discussion of the high level business requirements is provided to identify a common budget preparation process that could be used by all agencies to prepare budget submissions. This process would provide an integrated budget preparation system that relies on version control and automated workflow to be more efficient and to eliminate paperwork. Key objectives for the revised budget preparation process include:

- ✓ Integrate finance and HR systems
- ✓ Provide the functionality currently provided by agency-based budget preparation systems
- ✓ Establish version control to support multiple budget versions as the budget is developed
- ✓ Provide "What If" modeling capability
- ✓ Enable performance budgets
- ✓ Establish payroll assumptions and projections
- ✓ Analyze revenues and prepare revenue projections
- ✓ Establish spending forecasts

Integrate Finance and HR Systems
One of the major difficulties faced by budget preparers at all levels in the current system is the inability to easily access position data from PMIS. A new budget preparation system should be fully integrated with PMIS to provide easy access to information on authorized and filled positions to support the salary budget preparation activity.

Provide the Functionality Currently Provided by Agency-Based Budget Preparation Systems
The Budget Preparation System (BPS) was originally developed to provide OSBM with a system to gather agency budget requests and to prepare the Governor's Executive Budget. To gain agency acceptance, the budget preparation system needs to address the agency-required functionality as well as the OSBM-required functionality. As budget preparation requirements change over time, the budget preparation system must be updated to keep up with these ever-changing requirements.

Establish Version Control to Support Multiple Budget Versions as the Budget is Developed
The budget system should provide version control capability to allow the agency to build its budget request in private. Version control can also prevent agencies from changing budget data after it is submitted to OSBM. As each version is submitted to the next level, the receiver takes control of the budget version. Version control can also be used by OSBM to develop its budget recommendation in private without access by the agencies. The final OSBM version (which is the Governor's budget submission) will be the public version that is submitted to the Legislature.

Provide "What If" Modeling Capability
The volume of data that is required to develop a budget request at the agency level is significant. Given that there is often a limited amount of time and difficulty in accessing financial and HR data in the desired format, it is sometimes difficult to develop budget models on a variety of scenarios. The

budget system's requirements include a "What If" modeling tool that will allow the analyst to determine the impact of certain budget scenarios.

For example, the tool envisioned would calculate the likely impact of a 3% across-the-board salary increase on the overall budget. The modeling tool would not only recalculate the salary amounts, but also costs that are dependent on salary (e.g., benefits, etc.). The budget could also recalculated by inputting any combination of percentages or different scenarios.

Enable Performance Budgets
The purpose of performance-based budgeting requirements is to establish budgets based on achievement of agreed upon program objectives. Since the State does not currently use performance-based budgeting and since no performance-based budgeting strategy has been defined, the business requirements developed for this process are less specific than in other areas. This requirement is included because performance based budgeting ties budgeted amounts to service efforts and accomplishments. This is an issue that has been under review by GASB for some period of time.

Establish payroll assumptions and projections
Based on the position information maintained through Human Resources functionality, future year budgetary payroll, benefit and other salary related compensation (such as housing allowance) assumptions are entered into the system and personal services projections are automatically calculated. This process should allow for distribution of these costs across multiple funding elements, preferably based on date-delimited table values. This projection should also take into account the full-time, part-time or seasonal status of a position or position assignment. Establishing these payroll assumptions will help to achieve consensus and will keep the budget process on track.

Analyze Revenues and Prepare Revenue Projections
A variety of factors influence North Carolina's revenue stream, including legal and statutory issues, political forces, policy changes, taxpayer's ability to pay, and overall economic conditions. Analyzing revenues using various economic, planning and policy assumptions in order to develop a long-term forecast of revenues is critical. Revenue projections can be defined using actual or estimated revenue receipts (on a cash basis) as the basis for projection models for future periods. Revenue projecting models should be defined based on table-driven calculation steps that capture and quantify economic or programmatic assumptions. These models function to project and store revenue estimates.

Establish Spending Forecasts
Spending forecasts should be established on both a macro and unit-by-unit level. Estimates of agency aggregate spending are created based on historical information. Budget analysts prepare these projections by:

- ✓ Identifying extraordinary items to include or exclude from the forecast (such as one-time purchases)
- ✓ Adjusting the remaining expenditures by applying a percent factor (or applying another set of rules)
- ✓ Making manual adjustments to compensate for other known factors (such as agency or executive priorities or other mandates)

3.3 System Gaps and Risks

The following section of the document provides a discussion of the gaps, continued viability of the existing systems and the risks associated with maintaining the current system and the alternatives to the current system.

3.3.1 Functional Gaps

The existing systems do a good job of supporting the budget preparation and revision processes. OSBM is also in the process of web enabling much of the budget system to allow users and the public to access the system via the internet. There are however some functional gaps that emerge when comparing the capability of the current systems with functional requirements addressed by a best practices budget preparation system. These functional gaps are the result of either limited system capabilities and/or lack of integration among the budget systems and the budget systems with the other Core Administrative systems. Each of the major functional gaps is described in the remainder of this subsection.

The current systems are not able to perform position control budgeting. Typically a budget position control capability allows the personal services budget to be developed from position and salary data stored in the integrated database. The position control function is able to project salary costs based on filled positions by determining the salary range level at which the position is currently being filled and calculating merit and cost of living increases anticipated in the new budget period. The position control function also identifies partially filled positions to include positions that were partially filled as a result of staff turnover and those that are actually filled by a part-time resource. The system can calculate the impact of each type of partially filled position on the salary projection. At the present time the position control issue is addressed to some degree through the interaction between BPS and SCS and the interaction between BRS and SCS. The capability to accurately forecast salary budgets for partially filled positions however is not available.

At the present time Capital Budgeting is done outside of the budget systems because the budget systems do not have the capability to support capital budgets. The life of a large capital project often exceeds the boundaries of a single fiscal year or even a single biennium. As a result the budget preparation system must have the ability to project and budget revenue and expense data beyond the budget period. It is also necessary for the budget preparation system to be able to capture actual revenue and expenditure data on an inception-to-date basis to adjust the capital budget as needed. These capabilities do not exist in the current budget system.

The current budget systems do not provide version control that would allow agencies to develop different versions of their budget requests. Version control could be used to prevent OSBM from accessing agency budget data other than the final submitted request. This would allow agencies to do “what if” scenarios without fear that “Big Brother” was looking over their shoulders. Typically agencies manage their operations and control their budgets at a level of detail that is lower than the level of detail used to manage the statewide budget. If a central budget system does not provide the flexibility to allow each agency to secure versions of their own budgets, it is safe to assume that the agencies have developed budget preparation systems of their own. These agency based systems can range from PC based spreadsheets to more sophisticated budget preparation systems.

In addition to the functional gaps discussed above there is a general system integration and reporting gap that affects all of the budget systems. The data exchanges between the budget systems and the other core systems are generally manual or batch interfaces. In addition the budget document exchange between BPS and the Legislative Budget System is a manual process in both directions. This type of approach results in limited access to data and redundant data entry. In a truly integrated enterprise system data is entered once into a shared database that can be accessed by all of the applications. This leads to more accurate and more-timely data being made available to the user.

Automated workflow is also a function that is available in an integrated enterprise system. Automated workflow allows the user to route transactions for review and approval. It allows the system to enforce the budget calendar by automatically sending reminder and follow up notices for required submissions.

Finally as noted above the budget systems use the IMS database. IMS is a hierarchical database that provides pre-defined data relationships (e.g. parent/child). This type of database structure limits the types of reporting that can be accomplished through the system. A relational database management system (RDBMS) like DB2, Oracle, or SQL Server makes it much easier to perform ad hoc queries and reporting. An RDBMS also facilitates consolidation report data across applications and agencies.

3.3.2 Risk Assessment

Given the current economic climate, a budget system needs to be flexible and responsive. As the State executive management tries to understand the impact of reduced revenues on the operating budget, there are likely to be requests for information that cannot be easily met by the current budget systems. During the course of our interviews, we heard on more than one occasion that budget information is not readily available in a useful form. Gathering data from the budget systems particularly in regard to human resources is often a labor intensive process. This generally reflects the lack of system integration and the need for a reporting capability that allows the user to select and consolidate data in other than pre-defined relationships.

The other and possibly more significant risk associated with the current budget systems is that these systems were custom developed in house. The individual who designed and developed these systems is also the individual that maintains these systems. This individual is within a few years of retirement. Should this individual leave state employment, it is unlikely that the remaining staff would be able to support the system.

Like many of the other Core Systems, the budget systems are built on dated technology. Not only does this present problems in areas like system integration, automated workflow, and reporting, it also makes it difficult to find resources with the skill sets required to support these systems.

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4 CORE FINANCIAL SYSTEMS

4.1 Current System Environment

The North Carolina Accounting System (NCAS) is the official books and records of the State. NCAS was implemented to support the State's accounting, budgetary control, and financial management reporting requirements. The Cash Management Control System (CMCS) was developed to track cash transactions and balances by budget code. This functionality is not available in NCAS.

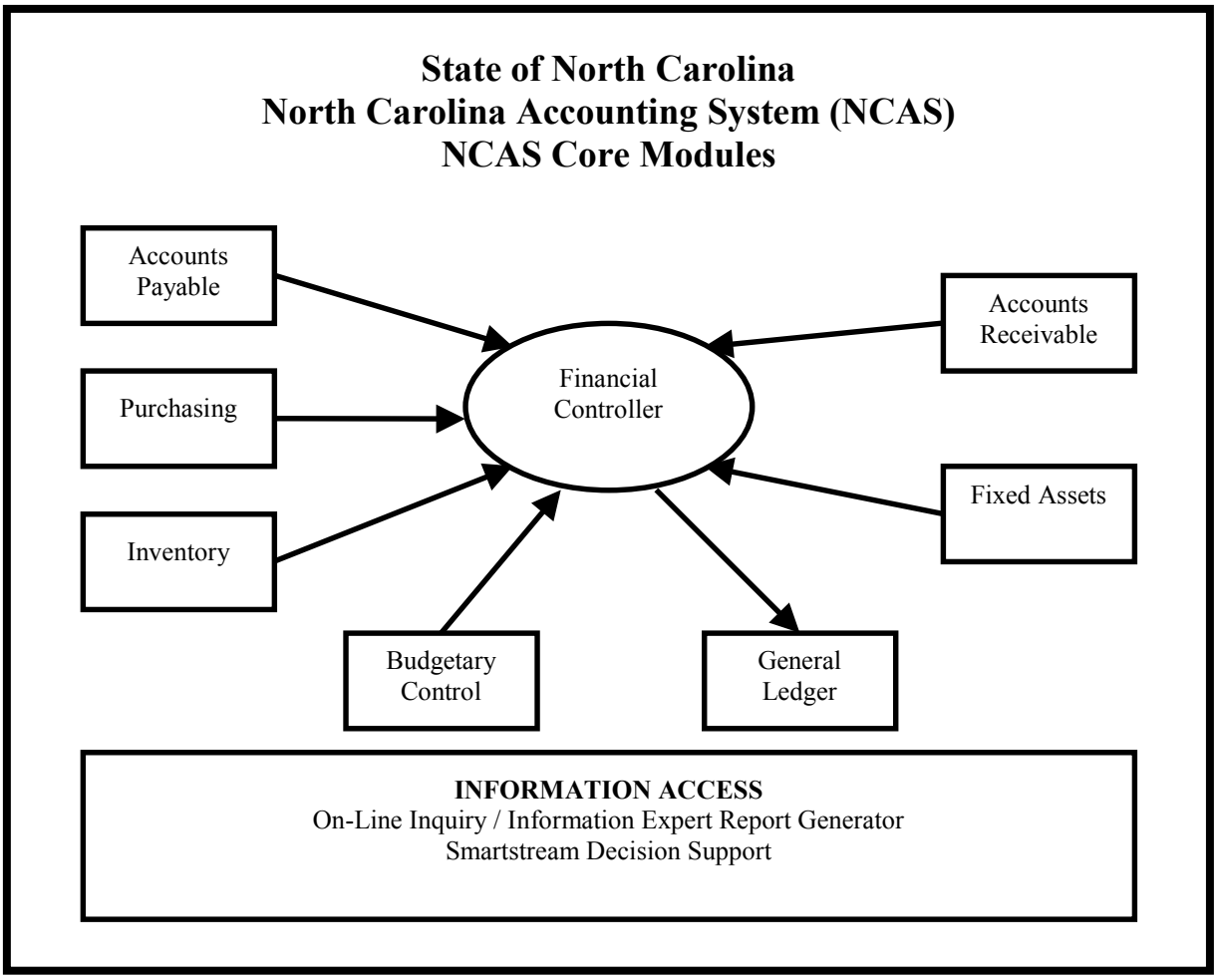
4.1.1 North Carolina Accounting System (NCAS)

4.1.1.1 Core System Purpose and Capabilities

Business Purpose: The NCAS is the central system for the State of North Carolina. It provides control over the State's fiscal policies and procedures, financial transactions, resource balances, and subsidiary accounts and records through a central general ledger and other uniform information databases. The NCAS provides financial statements and reports reflecting the current condition of all state agency accounts and assists central managers in maintaining financial control over State government operations. The State operates the NCAS in a decentralized environment in which each individual agency is responsible for the proper recording of all financial transactions. However, the NCAS does provide control and uniformity of data through central management of other key statewide data fields, a uniform chart of accounts, a central vendor file, system policies, a library of standard control, financial, and budgetary reports; and a set of defined system parameters that assure sufficient levels of timely, accurate information at the agency and statewide levels. The NCAS provides timely, consistent and accurate information access and reporting capabilities to all agency managers and central management authorities through the Statewide database of financial information. The NCAS accomplishes this through multiple methods of information access: on-line real-time inquiries, fourth generation language mainframe report creation, mainframe on-line report viewing, and client/server based Decision Support System (DSS) tools and information views.

Capabilities

- Provides access for inquiry and batch update
- Supports approximately 5600 users
- Provides a Report Generator
- Provides a Decision Support Reporting System
- Provides Actual Financial Data for Budget System
- Supports Cash Basis Fund Accounting (Budgetary Basis) and
- Accrual Basis Fund Accounting (GAAP Basis)
- Provides Complete On-Line Transaction Audit Trail and Trace-Back Capabilities
- Provides Validation of the Uniform Chart of Accounts from all Primary and Interface Users
- Provides Security from the application layer through the account code level
- Provides Summary and Detailed Information for Budgetary and GAAP Reporting
- Provides Multiple Period Posting Cycles
- Provides On-line Access to Summary Information with Trace-Back to Detailed Information
- Provides On-Line Analysis for Accounts and Ranges of Accounts
- Provides the Business Functionality as depicted in the following figure



Technical Platform: NCAS was developed using the Geac E Series Governmental Sector application suite. In addition to the base Geac software package, NCAS reporting capabilities are enhanced by a Decision Support System (DSS). NCAS is a mainframe based system that uses the OS/390 operating system. It is a CICS/VSAM system written in COBOL.

The DSS component of NCAS resides on a Sybase RDBMS and uses Cognos and Informatica extraction, query, and reporting tools.

4.1.1.2 *Planned System Enhancements*

The following enhancements are currently planned for NCAS.

- Provide web access to NCAS using IBM's Websphere Studio
- Apply Geac upgrades as required for support
- Add e-mail messaging capability to some of the workflow areas

4.1.1.3 System Interfaces

NCAS has several interfaces to other core systems:

Financial Core System	Other Core System	Interface Type	Interface Direction	Data Description
NCAS	BPS	Batch	Receive	Certified Budget
NCAS	BPS	Batch	Send	Year End Actuals
NCAS	BRS	Batch	Send	NCAS Account Validation
NCAS	BRS	Batch	Receive	Budget Revisions
NCAS	BSIP	Batch	Receive	General Ledger File
NCAS	CBS	Batch	Send	Positive Pay
NCAS	CBS	Batch	Receive	Check Reconciliation
NCAS	CMCS	Batch	Send	Deposits, ePayments, Requisitions, Transfers
NCAS	CPS	Batch	Receive	Personnel Expense Distributions
NCAS	e-Procurement	Batch	Bi-Directional	Funds Availability
NCAS	e-Procurement	Batch	Receive	Vendor Records
NCAS	e-Procurement	Batch	Receive	Requisitions, Purchase Orders, & Receipts
NCAS	e-Procurement	Batch	Send	Code Validation
NCAS	ITAS	Manual	Receive	Summary Revenue Totals (via RCA)
NCAS	PMIS	Batch	Send	NCAS Account Validation
NCAS	PMIS	Batch	Receive	Personnel Data

4.1.1.4 Current System Cost

Below are estimated costs for the annual NCAS operation and maintenance costs. General guidelines and assumptions used in gathering the cost information include:

- Costs are for the core agency supporting the system
- Costs captured include:
  - Technical system development and maintenance FTE costs
  - System support and operations FTE costs (e.g., running reports, bursting)
  - Help Desk FTE support
  - Maintenance, Licensing, and Application Service Provider (ASP) Fees
  - ITS charges for technical services (e.g., mainframe, networking)
  - Training costs to support the system
- Costs **NOT** captured unless otherwise noted include:
  - Infrastructure and capital costs like PCs, printers, imaging equipment, and plotters.
  - FTE costs associated with using the system (e.g. data entry, system inquiry, manual processing costs in data preparation, manual systems being maintained to supplement the core system. etc.)
  - Any costs from agencies outside the core agency that use the system unless it is included in the ITS charges billed to the core agency
  - Data processing supplies or miscellaneous expenses unless included in the ITS charges

If there are unique costs associated with the Operations and Support of a system the cost will be identified separately.

North Carolina Accounting System	
Annual Operating and Maintenance Cost Approximations	
Cost Categories	**Estimated Costs**
Staffing – State Employees (Development, Maintenance, System Support, Help Desk)	$2,659,497
Staffing – Contractor	$504,955
Technical Services (ITS charges for Mainframe, Telecom, Networking, etc…)	$2,409,397
Licensing / ASP / Maintenance Fees	$384,640
Training	$12,811
Miscellaneous Expenses	$15,475
TOTAL	**$5,986,775**

NCAS Cost Clarifications and Assumptions:
- Maintenance and operations costs provided by the Office of the State Controller represent annual costs.
- The training and miscellaneous expenses were captured from the Information Technology Expenditures Report for the period ending June 30, 2002.

4.1.2 Cash Management Control System (CMCS)

4.1.2.1 Core System Purpose and Capabilities

Business Purpose: The Office of the State Controller's Cash Management Section maintains the Cash Management Control System (CMCS), an on-line system, for the purpose of recording daily transactions that affect the cash balances of the State. The State Controller provides state-wide access to CMCS through the State Computer Network. Daily, more than 1,000 CMCS users, in State departments, agencies, and institutions across the State access CMCS to certify the deposit of State funds, transfer funds to other budget codes and requisition funds to pay for goods and services provided to the State. Daily transactions are electronically transferred to the Department of the State Treasurer for posting to the State Treasurer's accounts.

Capabilities
CMCS enables the Cash Management Section to perform the following functions:
- assess the cash position of the State
- maintain monetary control over appropriations
- maintain monetary control over monthly/quarterly allotments
- maintain monetary control over disbursements
- provide account balances as required for monthly and quarterly reporting

CMCS provides data entry screens for the following transactions:
- certification of deposits
- requisition of funds
- intra agency transfer of funds
- inter agency transfer of funds

CMCS provides inquiry screens that enable users to:
- inquire on the status of individual transactions
- inquire on balances in budget codes
- compare balances with agency accounting records prior to reporting

Technical Platform: CMCS was developed in house. The system is written in COBOL. CMCS resides on the mainframe OS/390 operating system and uses the IMS DL/I database.

4.1.2.2 Planned System Enhancements

Currently there are no enhancements planned for CMCS

4.1.2.3 System Interfaces

The Cash Management Control System has several interfaces to other core systems:

Financial Core System	Other Core System	Interface Type	Interface Direction	Data Description
CMCS	CBS	Batch	Send	Deposits, Requisitions, Transfers (Available July 2003)
CMCS	CBS	Batch	Receive	Interest Posting
CMCS	CBS	Batch	Send	EOM Budget Code Balancing
CMCS	ITAS	Manual	Receive	Cash Deposits (via RCA)
CMCS	NCAS	Batch	Receive	Deposits, ePayments, Requisitions, Transfers
CMCS	DOT-BSIP	Batch	Receive	Deposits, Requisitions, Transfers (Available July 2003)

4.1.2.4 Current System Cost

Below are estimated costs for the annual CMCS operation and maintenance costs. General guidelines and assumptions used in gathering the cost information include:

Costs are for the core agency supporting the system.
Costs captured include:
Technical system development and maintenance FTE costs

- System support and operations FTE costs (e.g., running reports, bursting)
- Help Desk FTE support
- Maintenance, Licensing, and Application Service Provider (ASP) Fees
- ITS charges for technical services (e.g., mainframe, networking)
- Training costs to support the system
- Costs **NOT** captured unless otherwise noted include:
- Infrastructure and capital costs like PCs, printers, imaging equipment, and plotters.
- FTE costs associated with using the system (e.g. data entry, system inquiry, manual processing costs in data preparation, manual systems being maintained to supplement the core system. etc.)
- Any costs from agencies outside the core agency that use the system unless it is included in the ITS charges billed to the core agency
- Data processing supplies or miscellaneous expenses unless included in the ITS charges

If there are unique costs associated with the Operations and Support of a system the cost will be identified separately.

Cash Management Control System	
Annual Operating and Maintenance Cost Approximations	
Cost Categories	**Estimated Costs**
Staffing – State Employees (Development, Maintenance, System Support, Help Desk)	$206,824
Staffing – Contractor	$23,438
Technical Services (ITS charges for Mainframe, Telecom, Networking, etc…)	$24,295
Licensing / ASP / Maintenance Fees	$0
Training	$0
Miscellaneous Expenses	$89
TOTAL	**$254,646**

CMCS Cost Clarifications and Assumptions:
- Maintenance and operations costs provided by the Office of the State Controller represent annual costs.
- Contractor costs are a partial allocation of an FTE. This contractor also supports CPS.
- The miscellaneous expenses were captured from the Information Technology Expenditures Report for the period ending June 30, 2002.

4.2 Best Practice Business Requirements

CMCS was developed to perform the cash management function including the ability to monitor available cash by budget code and the ability to forecast cash requirements. NCAS was developed to provide the State with a tool to achieve many of its goals and objectives. These goals include:

- To ensure that financial, accounting and budgetary information is timely, consistent, fully integrated, easily accessible, and accurate
- To provide full budgetary control and reporting capabilities consistent with North Carolina General Statutes
- To provide effective information access that includes flexible reporting capabilities for agencies and central administrators
- To provide adequate security and controls for the recording of proper and reliable financial information.

NCAS was developed to recognize the true benefits that could only be realized through a single centralized core financial system.

4.2.1 Best Practices Financial System

In the current economic climate, State Government Financial Systems have to do much more than just appropriation accounting. The “Best Practices” financial system must provide consistent, timely, and accurate financial management information across agency boundaries to support the central management of the State Government. This includes a system that allows the central State management to develop uniform accounting data structures to support statewide reporting and also provides the flexibility for agencies to define agency level data structures to support agency financial management. For example, the system should be able to easily answer the following questions:

- How much did the State of North Carolina spend on children’s programs?
- How much did the Department of Health and Human Services spend on Child Welfare?

The “Best Practices” system should provide the ability to quickly respond to information requests through on-line access to financial information at both the agency and enterprise levels. In addition to on-line access for standard queries and reports, the system should also allow users to perform ad hoc queries and reports. This allows financial managers to present the financial data in a form that enables them to effectively manage their programs. The system should also support on-line real time data validation, funds checking, and account posting to provide managers with timely financial information. More timely data combined with agency defined data structures reduces the need for agency level financial systems.

“Best Practices” financial systems are also fully integrated. They include general ledger, budget preparation, budgetary accounting, accounts payable, accounts receivable, procurement, inventory, fixed assets, project accounting, grant accounting, revenue accounting, and cash management. These systems also provide automated workflow to route and approve transactions substantially reducing the amount of time required to process accounting transactions.

These systems provide web based user interfaces. This allows access to the system through the internet. Internet access can be used to reduce some the current workload by allowing the public to access the system directly without assistance from state staff. For example a vendor can determine the status of his payment through on-line inquiry over the internet. The financial system should also be integrated with the HR/Payroll system. This allows a real time exchange of data concerning salary and benefit expenses. In a “Best Practices” system, the cash management function is an integral part of the financial system. The financial system records all cash transactions in the Treasurer’s account group. The Treasurer’s account group identifies each agencies cash balance by account code. The cash accounts are posted by the financial system. There is no need for duplicate data entry or batch interfaces. The financial system also provides a cash forecasting tool that allows the user to forecast cash requirements based on historical trends and current economic conditions. The cash forecasting capability also supports “What If” modeling.

4.2.2 Business Requirements

The following section provides a list of financial system business requirements for each of the major functions being reviewed, including cash management. These business requirements were developed based on current best practices. “Best Practices” financial requirements include:

- **Support multiple basis of accounting.** Typically state governments operate on a cash or modified accrual basis of accounting in order to comply with state statutes. The recent GASB 34 pronouncement requires states to report certain CAFR schedules on an accrual basis. To comply with both state statutes and GASB the financial system must support the cash, modified accrual, and accrual basis of accounting.

- **Provide integration with the Procurement and HR/Payroll systems.** Integration between the financial and procurement systems is necessary to reduce data redundancy (e.g. maintain a single vendor file for accounting and procurement) and to facilitate budgetary funds checking. Integration with HR/Payroll is essential to budget and account for personal services expenses (salaries and benefits).

- **Define a uniform statewide chart of accounts.** Consistent and accurate financial reporting relies on a uniform data classification structure (chart of accounts). It is important that all agencies classify their state level data in a consistent manner. This allows the State to report on programs and activities that cross agency boundaries. The chart of accounts should also allow agencies to capture agency level data in a manner that is unique to the agency.

- **Support the materials management process related to inventory, purchasing and accounts payable.** The materials management process is an important component of an integrated financial system. An integrated system has the ability to check inventory at the time a requisition for materials is issued. Inventory items are issued first to satisfy requisitions. If the item is not in inventory the system initiates the purchase order process and encumbers the funds in the financial system. The system also initiates the purchase order process for inventory items

based on specified reorder points. Goods and services are received and subjected to a three or four way match (PO, Invoice, Receiving Report, and Inspection Report).

- **Perform revenue accounting.** This is an area that is often overlooked in state government financial systems. Typically the major sources of state government revenue are from taxes and federal grants. Tax revenues are typically supported by a separate tax systems and grant revenues are tracked in the grant accounting module of the financial system. However, states have other sources of revenues that include licenses and fees. While the dollar value of these revenues tends to be small in comparison to tax and grant revenue there is typically a significant transaction volume associated with these other revenues. It is important that the financial system have the ability to record revenue and cash receipts to support the revenue accounting process.

- **Perform fixed asset accounting.** GASB 34 also requires states to report depreciation for fixed assets for all funds. In the past states typically only reported depreciation for enterprise fund assets.

- **Perform project accounting.** Capital projects are often long term in nature. Typically this requires the ability to account for projects across fiscal year boundaries. The system should also provide the capability to capitalize the cost of the project as a fixed asset at the conclusion of the project when the asset is placed into service.

- **Perform grant accounting.** Grants are typically awarded on a Federal Fiscal Year. The system must be capable of accounting for grants that cross state fiscal years. In addition some grants are formula based. That it is to say that grant expenses are shared by federal, state, and local governments based on a predetermined formula. The system must have the ability to allocate costs to the various funding sources based on the funding formula. While it is highly desirable that these allocations are performed on-line, it is acceptable to perform them through a subsequent batch process.

- **Support fiscal year-end and CAFR reporting process.** The system should support multiple fiscal periods to allow the State to operate in the new year as it closes the old year. The system must also be capable of supporting the State's year-end processes (e.g. lapse, carry forward, accruals, etc.).

- **Monitor Cash Availability** – In addition to the budgetary funds availability edit, the financial system should also check to determine that the available cash balance is sufficient to cover the check(s) that are about to be written. This edit should be automated based on a set of user defined business rules.

- **Maintain Cash Balances by Spending Account** – The financial system should identify cash balance by spending account. The system should also provide the flexibility to define spending accounts at multiple levels of the data classification structure. For example it may be desirable to define state funded spending accounts at the appropriation or allotment level of detail and federally funded spending accounts at the grant level.

- **Perform Revenue Budget Availability Edit** – Programs that are supported by federal grants are typically budgeted based on the anticipated grant revenue. The financial system should have the ability to validate budgetary funds availability based on the amount of actual federal revenues received to date.

- **Perform Cash Forecasting** – Provides the ability to forecast cash availability based on historical trends. Also provides a "What If" modeling capability to forecast cash based on the current economic environment and other current information.

- **Financial System Integration** – The cash management function should be an integrated component of the financial system.

4.3 System Gaps and Risks

The following section provides a discussion of the functional system gaps, continued viability of the existing systems and the risks associated with maintaining the current system and the alternatives to the current system.

4.3.1 Functional Gaps

Of all of the core systems that we reviewed, NCAS is the system that most closely reflects best practices. NCAS provides fully integrated general ledger, budgetary control, accounts payable, purchasing, inventory, fixed assets, and accounts receivable. Recently the State has moved to an e-Procurement system which is interfaced to NCAS. As a result the NCAS procurement functionality is used only on a limited basis. Additionally NCAS also includes a Decision Support System component that facilitates financial management reporting. While the system provides a great deal of functionality, there are some gaps that should be addressed.

NCAS is not integrated with other Core systems such as e-Procurement, HR/Payroll, and Budget. This presents issues with regard to redundant data, data reconciliation and the ability to report on data that affects more than one of these systems. Better integration between NCAS, BPS, and PMIS would make it much easier to gather salary data for budget development. In addition the lack of integration between NCAS and e-Procurement presents a host of issues that include vendor file management, redundancy and reconciliation, and other data redundancies, such as duplication of requisition, receiving and purchase order information.

It is very difficult to identify salary cost in NCAS for systems, projects, etc. because salary expense cannot be tracked at the project level. For example it is not possible to identify the salary cost associated with the maintenance and operation of NCAS without going to PMIS and identifying position classifications. The addition of a project tracking feature would make it possible to identify salary costs for system maintenance and operations in NCAS.

Cost allocation is performed by the agencies outside of the NCAS system. Cost allocation functionality is not provided by the Geac package. As a result NCAS is not able to support the agencies' cost allocation requirements. This presents issues concerning the ability to allocate direct costs by funding source and indirect costs to grants and projects. This information is essential to support grant claims and drawdowns.

NCAS does not have a specific grants management module. While procedures have been developed to help agencies track their grants by using the agency definable segments of the NCAS chart of accounts, it is not possible to do funds checking by grant. Grants can be reported by agency but there is no state level grant reporting available. NCAS has similar issues with project accounting. There is no separate project accounting module and the agencies in many cases do their project accounting outside of NCAS.

NCAS provides a limited automated workflow capability. Automated workflow provides an automated routing and approval capability that leads to more efficient document processing. Currently evaluations are being performed to enhance the NCAS automated workflow with e-mail notifications. Software vendors have automated workflow applications with e-mail notifications to make the manual processes that support automated systems more efficient. Often system efficiency is hampered by paper based signature driven processes that can easily be replaced with automated workflow. Automated workflow can be used to route documents for approval and improve the overall efficiency of the invoice approval process.

The NCAS Geac accounts receivable module has limited functionality and is currently used only by DHHS Division of Medical Assistance, the Office of Information Technology services, and Department of Public Instruction's Textbook Warehouse. As a result, numerous agency accounts receivable subsystems are used to support the State's receivable activity along with multiple agency specific billing systems. Agencies post summary account receivable information to the NCAS general

ledger at year end. All detail receivable information is maintained at the agency subsystem level and is not available in a statewide database that could accommodate the consolidation of receivables information across agencies and across debt types in order to eliminate redundant research and collection activities at the agency level. Lack of a system wide database also does not support debt offset at the enterprise level.

The fixed asset module of NCAS is not tightly integrated with Accounts Payable. This limited integration updates a temporary fixed asset file with data from Accounts Payable of assets that have been acquired. Agencies must review the temporary data on-line and if they are in agreement, release the information to update Fixed Assets. The remaining asset information such as useful life, salvage value, location, etc. is manually entered into the fixed asset module. While NCAS has the ability to calculate depreciation for fixed assets, it is no longer used. Prior to GASB 34, NCAS calculated depreciation for Enterprise Fund fixed assets. GASB 34 requires that depreciation be reported for fixed assets in all funds. Because of a limitation in the system that prevented users from entering depreciation for past accounting periods, depreciation cannot be calculated for the other funds. As a result depreciation is calculated outside of NCAS for use in the CAFR.

NCAS does perform budgetary funds availability checking for all encumbrance and expenditure transactions. However, NCAS does not have the ability to perform an available cash edit before checks are written. Cash balances by budget code are maintained in CMCS. A batch interface between NCAS and CMCS is used to update CMCS with checks to be written by budget code. Cash Management personnel manually perform the cash availability verification in CMCS before NCAS checks are released.

Finally, the NCAS chart of accounts provides for both state level and agency level data classification. However, the underlining Geac system has some limitations with regard to the number of fields and code sizes available. As a result, trade offs were made as part of the NCAS implementation. These trade offs have resulted in some gaps. For example, there is no ability to do state level reports on programs that cross agency boundaries (e.g. what is the cost to the State for children's programs). It is also not possible to identify the funding source that supports a specific expenditure transaction (e.g. state funds, federal funds, bond funds, etc.). This could result in unclaimed federal funds and arbitrage issues for bond funds.

CMCS is not integrated with any of the other core systems. CMCS is updated with cash based transactions through manual input to an on-line mainframe system. Users are required to return to the same on-line system at a later time to verify that their transactions have been approved. This approach limits the timeliness of the data.

The budget code is the level at which funds are allotted through the budget system. Tracking cash balances at this level can pose problems for agencies whose budgets are dependent on federal grant revenues. Unless the budget code is aligned with the grant code, these agencies are required to constantly transfer between state and federal funds.

Requisitions, which represent requests to transfer cash to an agency's spending account, are sent to CMCS through a batch interface from NCAS. CMCS has an automated cash availability function to verify sufficient funds are available to release the requested requisition or transfer. However, staff in the Cash Management section, through on-line access to CMCS, must manually approve or reject a requisition or transfer. In situations where there is not enough cash available to cover payments, the checks are physically held. The fact that this process is not automated forces the State to rely on manual intervention not just to review the requisitions, but also to prevent payments from being made when sufficient cash to cover the payments is not available.

CMCS does provide reports that allow the cash management section to forecast cash requirements. According to the individuals interviewed these forecasts are actually very accurate. That said CMCS does not provide "What If" analysis capability.

4.3.2 Risk Assessment

4.3.2.1 North Carolina Accounting System

Despite the gaps identified above, NCAS does a good job supporting the State's financial management information requirements. Improving the interfaces and data exchanges with e-Procurement, HR/Payroll and Budget along with the addition of an automated workflow would go along way toward improving the efficiency of the financial management process. The major areas of concern with regard to NCAS risk and viability reside with the package software vendor and the system's technical platform.

NCAS is a heavily customized version of the Geac financial software package. Like most other software vendors, Geac issues new releases of their software periodically. Geac customers are encouraged to upgrade to new releases because as new releases become available, older releases are no longer supported. For a Geac customer that implemented the package without modification these upgrades are fairly easy to implement. For customers that have made significant modifications to the package, like NCAS, these upgrades can be very difficult and time consuming to implement.

To add to the software support issue, the current NCAS technical platform is dated. NCAS is a CICS/VSAM system written in COBOL. Geac like many of its competitors is migrating its product suite to more current web based technologies. Eventually the current NCAS software release will not be supported by Geac and the State will be forced to move to a web based release of the software. This move will require a major technical hardware and software upgrade and could actually result in a re-implementation of the system.

4.3.2.2 Cash Management Control System

Despite the gaps identified above, CMCS does a good job supporting the cash management function given its technical limitations. The risks associated with CMCS are driven largely by the lack of integration with the other core systems. Improving the interfaces and data exchanges along with changing the data structure from budget code to accounting code would significantly improve the efficiency of the cash management process.

The other area of concern that should be addressed is the manual nature of the cash availability check. This edit should be automated. If the interfaces are improved and the edit is automated, the edit can be performed before the checks are physically written. This way the system can prevent checks from being written, eliminating the need to rely on someone to physically hold the check until the cash arrives.

5 CORE TAX AND REVENUE SYSTEM

5.1 Current System Environment

5.1.1 Integrated Tax Administration System (ITAS)

5.1.1.1 Core System Purpose and Capabilities

Business Purpose: The North Carolina Department of Revenue (DOR) is responsible for all tax-based revenue collection activities of the State, such as individual and corporate income tax, sales and use tax, payroll withholding taxes (other than unemployment insurance), and all excise and other miscellaneous taxes. North Carolina has about 3.5 million individual taxpayers, and generates almost 2.5 million refund checks per year. DOR has approximately 1300 employees. The Integrated Tax Administration System (ITAS) is the primary system used by the DOR to administer the revenue collection functions. ITAS, which is based on Accenture's Tax Administration System (TAS) transfer software, was implemented in 1994 and covers the major tax types. ITAS supports approximately 800 users in 32 field offices with about 220 state auditors, 280 collectors and examiners, and 25 to 30 out of state auditors. The number of offices is slated to be reduced to 15, which will put greater demand on technology, such as Customer Relationship Management (CRM), to provide user and taxpayer support.

Capabilities: ITAS provides the following functionality essential to its operations:

- Tracks taxpayer-related information, such as name and address, SSN/FEIN, relationships between taxpayers such as spouse and family information, corporate parent/subsidiary relationships, doing business as (DBA) and corporate officer information. This process also includes such activity as printing labels for returns and recording mail returned by the post office.
- Enables filing of tax returns and payment of taxes
- Performs taxpayer accounting, which posts transactions and payments to a taxpayer's account, calculates penalties or interest charges, refunds or bills customers for over or underpayment as appropriate, and provides management reports
- Applies and processes payments, including NSF checks
- Generates notices and other correspondence with taxpayers.
- Provides case management functionality to provide assistance and support to all employees who interact with taxpayers.

ITAS has undergone continual modifications to meet legislative and state revenue collection requirements.

Technical Platform: ITAS is a mainframe system written in the COBOL and EasyTrieve programming languages and runs on the DB2 database platform. Although the capability exists, DOR has not implemented the Graphical User Interface (GUI) feature. User access to ITAS is through mainframe terminals, also known as green-screen – technology that is universally considered outdated given the more recent GUI and browser-based access available in most systems today.

Other Revenue Systems: There are several other related systems that provide additional revenue collection functionality:

- Revenue Collections and Accounting System (RCA) performs the base revenue accounting functions for all Departmental tax receipts, refunds, transfers, and distributions to local governments. RCA is a custom developed add-on to ITAS and operates under the UNIX operating system and uses the UDB/DB2 RDBMS platform. It provides a variety of reporting functions, such as collection analysis by category, and summary accounting relating to revenue collections and distributions. RCA is updated with revenue and collections data through online data entry or from batch interfaces with other systems including, Online Filing and Payments (OFP), EFT, and the Department's manual deposit system. Transfers between tax schedules and adjustments are received from ITAS.

- Java Enabled Tax Systems (JETS) covers the majority of the remaining minor and miscellaneous tax types. This is a stand-alone system which runs on the UNIX operating system and uses the UDB/DB2 RDBMS platform.
- VISTA processes motor carriers tax information (returns, assessments, refunds, manual entry of payments), and is a stand-alone system.
- USUB is used to track assessments and collections relating to unauthorized substances. It is a stand-alone application.

In addition, the DOR has over the last several years, added functionality that facilitates more efficient and accurate tax return intake and processing.

- Data Capture captures images of tax returns and other incoming documents and automatically updates ITAS with data from the scanned images. This system was implemented in 1999. Data Capture is based on the IBM/IFP document imaging platform. The DocQuery tool provides access to the images captured.
- Electronic Filing for Individual Income Tax (ELF) which allows individual taxpayers to file their returns via the Fed/State electronic filing program.
- Electronic Funds Transfer (EFT) which provides taxpayers with the ability to pay business taxes electronically
- Online Filing and Payments (OFP), which accommodates online payment of individual income tax returns (tax returns are still sent in paper form or ELF). OFP also allows the filing and payment of sales and use tax returns. It has a batch interface with ITAS. .
- Electronic direct deposit of individual income tax refunds was implemented in 2003 through the use of the State's Common Payment Services (CPS).

5.1.1.2 System Enhancements

DOR is continually modifying the ITAS as well as adding and/or modifying the additional systems listed above. Among the enhancements planned for ITAS and the other revenue systems are:

- Expansion of OFP to allow for on-line filing of withholding taxes (scheduled for May 2003).
- Expansion of OFP to allow for on-line payment of tax assessments (scheduled for late 2003).
- Case Management enhancement to the backend processing of overdue, delinquent and fraudulent accounts (planned early 2004).
- Payment Agreement enhancement to allow for automation of recording and tracking of taxpayer payment agreements, a process currently manual (scheduled for late 2003).
- Forms changes to support new and changing legislation (generally done annually).
- CRM software is being implemented by ITS to support the new Taxpayer Assistance and Collection Center (TACC) project. DOR is also making changes to ITAS functionality to enhance the effectiveness of the TACC project – these changes will provide taxpayer level view of all cases relating to the taxpayer.

5.1.1.3 System Interfaces

ITAS has a limited set of interfaces with other core systems. It has no automated interface to NCAS, but does have a bi-directional batch interface with the Treasury "Positive Pay" system which enables verification of check recipients and amounts. ITAS also provides refund and adjustment data to RCA to support its revenue accounting and reporting functions.

Core System	Other Core System	Interface Type	Interface Direction	Data Description
Integrated Tax Administration - ITAS	NCAS	Manual	Send	Summary Revenue Totals (via RCA)
	CMCS	Manual	Send	Cash Deposits (via RCA)
	CBS	Batch	Bi-Directional	Cash Reconciliation

ITAS does have several other interfaces to other agencies and entities external to the state, almost all of which are batch interfaces. These agency interfaces are:

- ITAS receives tax offset information from a set of agencies (received in one batch file)
- ITAS sends back offset amounts to each agency via funds transfer (batch)
- OFP sends credit card and ACH debit information for taxpayer payments to the Common Payment System (CPS). This is done through a real-time transaction.
- ITAS sends direct deposit of individual income tax refunds to taxpayers (batch)

The interfaces to entities external to the state include the following:

- ITAS receives individual income and business tax return data from the IRS through the FedState data exchange program (batch)
- ITAS sends tax debt data to the IRS for offsetting against the IRS refund and receives refund data back from the IRS (two-way batch interface under the IRS Reciprocal Refund Offset Program)
- ITAS receives tax debt data from the IRS for offsetting against the DOR refund and sends refund data back to the IRS (two-way batch interface under the IRS Refund Offset Program)
- ITAS sends tax debt data to the outside collection agencies (NCO and OSI are the OCAs), and receives payment information and demographic updates from the OCAs (two-way batch interface)
- ITAS sends taxpayer data to the IRS to get updated addresses for individuals and receives taxpayer address data back from the IRS (two-way batch interface)
- ITAS sends taxpayer data to the National Change of Address (NCOA) to get updated addresses for individuals and receives taxpayer address data back from NCOA (two-way batch interface)
- ITAS sends taxpayer data to various vendors who produce the tax return books each year.

The interfaces to entities external to the State include the following:

- ITAS receives individual income and business tax return data from the IRS through the FedState data exchange program (batch)
- ITAS sends tax debt data to the IRS for offsetting against the IRS refund and receives offset refund data back from the IRS (two-way batch interface under the IRS Reciprocal Refund Offset Program)
- ITAS receives tax debt data from the IRS for offsetting against the DOR refund and sends offset refund data back to the IRS (two-way batch interface under the IRS Refund Offset Program)
- ITAS sends tax debt data to the outside collection agencies (NCO and OSI are the OCAs), and receives payment information and demographic updates from the OCAs (two-way batch interface)
- ITAS sends taxpayer data to the IRS to get updated addresses for individuals and receives taxpayer address data back from the IRS (two-way batch interface)
- ITAS sends taxpayer data to the National Change of Address (NCOA) to get updated addresses for individuals and receives taxpayer address data back from NCOA (two-way batch interface)
- ITAS sends taxpayer data to various vendors who produce the tax return books each year

5.1.1.4 Current System Cost

Below are estimated costs for the annual ITAS operation and maintenance costs. General guidelines and assumptions used in gathering the cost information include:

- Costs are for the core agency supporting the system
- Costs captured include:
- Technical system development and maintenance FTE costs
- System support and operations FTE costs (e.g., running reports, bursting)
- Help Desk FTE support
- Maintenance, Licensing, and Application Service Provider (ASP) Fees
- ITS charges for technical services (e.g., mainframe, networking)
- Training costs to support the system
- Costs **NOT** captured unless otherwise noted include:
- Infrastructure and capital costs like PCs, printers, imaging equipment, and plotters.
- FTE costs associated with using the system (e.g. data entry, system inquiry, manual processing costs in data preparation, manual systems being maintained to supplement the core system. etc.)
- Any costs from agencies outside the core agency that use the system unless it is included in the ITS charges billed to the core agency
- Data processing supplies or miscellaneous expenses unless included in the ITS charges

If there are unique costs associated with the Operations and Support of a system the cost will be identified separately.

Integrated Tax Administration System	
Annual Operating and Maintenance Cost Approximations	
Cost Categories	**Estimated Costs**
Staffing – State Employees (Development, Maintenance, System Support, Help Desk)	$2,214,007
Staffing – Contractor	$1,576,671
Technical Services (ITS charges for Mainframe, Telecom, Networking, etc…)	$6,407,465
Licensing / ASP / Maintenance Fees / HW and SW purchases	$227,470
Training	$131
Data Processing Supplies	$46,930
Miscellaneous Expenses	$191,322
TOTAL	**$10,663,931**

ITAS Cost Clarifications and Assumptions:

1. ITAS maintenance and operations costs captured from the 2002 Information Technology Expenditure Report dated June 30th, 2002 and represent costs for the 1 year period July 01 – June 02.
2. The Information Technology Expenditure Report identified data processing supply and miscellaneous expenses associated directly with ITAS. These costs are included.
3. FTE costs include those for open positions.
4. The maintenance fees for ITAS also include new hardware and software purchases made by the agency. The amounts were blended together in the Information Technology Expenditures Report and are included in the cost estimate.

5. Best Practices Business Requirements

5.1.2 Best Practices

The Tax and Revenue Systems in place in other states today are either: (1) custom developed systems; (2) systems transferred from other states, or (3) systems developed as a module of an Enterprise Resource Planning (EPR) system. Regardless, the state of the art systems generally support the following advanced functionality (beyond what is supported by ITAS):

- GUI input and access to revenue information
- Integrated returns processing, taxpayer accounting and revenue accounting functions, such as:
  - Automated interface with the statewide financial system for recording of revenue collections to specific accounts and distribution of revenues to outside agencies and local taxing jurisdictions
  - Automated allocation of receipts to specific funds and local taxing jurisdictions
  - Integrated imaging to collect tax return data
- Extensive accounts receivable functionality
- Flexible taxpayer correspondence generation, such as the real-time forms generation and the ability to print customized notices on a real-time basis locally
- Support for best practices tax collection activities, such as:
  - Automated workflow and case management
  - Credit and risk scoring analysis of receivable accounts,
  - Case tracking, such as payment agreements, legal action etc.
- Support for best practices audit discovery of non-filers, under reporters, and other non-compliant taxpayers, including:
  - Automated systemic identification of non-filers
  - Capability to interface with outside organizations beyond the IRS, such as Business Associations
  - Automated interfaces with other agencies such as DMV, Employment Security, and SOS
- Timely and varied management reporting and user query access through the use of state-of-the-art business intelligence tools via a data warehouse or data mining
- Support for field auditors, such as access to up-to-date taxpayer information. Today's technology may also permit real-time, wireless access to this data as necessary.
- Integration of taxpayer information with imaging and data capture
- Browser-based access for taxpayer self-service, including inquiries and transaction processing
- Support for a full-fledged e-vision and strategy

In the case of systems that have been developed as part of an overall ERP, the tax and revenue system is based on the same technology as the ERP and is fully integrated with the budget, financial and HR/Payroll systems providing for potential organizational economies and efficiencies, as well as better integrated statewide reporting capabilities. For example, the tax and revenue system can report against established revenue budgets.

5.1.3 Business Requirements

The tax and revenue function includes all of the activities required to track all tax revenue collection activities, including detailed information essential to ensuring that all individual and business taxpayers are reporting and paying the taxes they owe in a timely and accurate manner. This function includes the support of audit selection, compliance monitoring, examination of returns and collection tasks carried out by DOR, as well as support provided to taxpayers in making timely information available to them and in facilitating the timely and accurately reporting and payment of their taxes.

Business requirements have been identified to account for all taxpayers, their tax payments, and any follow-up that may be necessary to ensure full compliance with the tax regulations of the State. The tax and revenue business requirements also include the activities necessary to complete the revenue accounting functions essential to ensuring that revenues and receipts are transferred and allocated

to the proper State accounts and the appropriate taxing jurisdictions. The detailed tax and revenue business requirements are listed in the Appendix of this document. In this subsection, a high level discussion of the business requirements is being presented as articulated by DOR beyond the best practice system functionality listed above.

In 2000, DOR completed two projects. These projects were a Best Practices study in the area of Delinquent Tax Collection and an e-Strategy review for DOR. The findings and recommendations from these projects are already included in our best practices requirements list.

5.2 System Gaps and Risks

5.2.1 Functional Gaps

ITAS satisfactorily performs the basic tax and revenue collection functions of the state such as taxpayer identification, returns processing, taxpayer accounting and correspondence generation. It is a stable system on an established platform – written in COBOL and running on a mainframe DB2 platform. However, it is accessed through an outdated technology – it is accessed through mainframe terminal emulation, which is a generation behind the current technologies such as GUI, browser-based access.

From a functional standpoint, DOR has identified a key set of deficiencies and potential enhancements that could increase the organizational efficiency and effectiveness. In particular:

- Exception processing is very inefficient and causes significant delays. About 10% of the 3.5 million individual taxpayers in North Carolina require exception handling. The exception process is mostly a manual process.
- The notice and correspondence generation facility (called Document Control Facility or DCF) is outdated and not flexible enough to support DOR needs. For example, DCF cannot print locally or remotely, and cannot customize notices.
- The system is batch driven, and is very limited in being able to generate forms on a real-time basis and cannot print faxes.
- The system cannot generate timely management reports. The standard reports are inadequate to support ad-hoc and complex reporting and analysis needs. The system does not have business intelligence or data warehousing tools to generate such reports.
- The system does not support online account inquiry for taxpayers.

Although enhancements are planned, ITAS currently lacks some functionality to support effective revenue collection and tax discovery. Today, best practice state, provincial and federal revenue administration agencies have enhanced their collection activities through a variety of technology, tools and techniques. In particular, they have used automated workflow and case management functionality to improve overall collection effectiveness. They use systems to identify delinquent accounts, automatically send out notices, and track taxpayer receivable information accurately and efficiently, including payment agreements made with the taxpayer and any legal action taken, such as liens or garnishments.

These organizations also use analytic tools that allow them to determine the risk of collection, potential taxpayer yield and the probability of early and full collection using predictive scoring models. These models incorporate a set of user defined criteria such as income, payment and filing history. Such an approach allows those organizations to exclude those accounts considered not worth collecting and focus on high yield accounts. These organizations then use automated tools such as predictive dialers to automate the outgoing call function and further enhance their collection effectiveness. Currently DOR does not have any systems that support these capabilities. DOR is in the process of implementing Call Center capabilities with Interactive Voice Response (IVR) and Computer Telephony Integration (CTI) capabilities. Automatic dialing functionality will also be added to further enhance collections capabilities.

Similarly, best practice revenue organizations also utilize a variety of system tools and methods to select the best candidates for audit and for discovery of non-compliant taxpayers such as non-filers and under reporters, i.e. taxpayers with the highest likely revenue and collection yield. Identification of delinquent taxpayers is done via matching techniques. As examples, individual state non-filers are identified through a match with the IRS W-2 information or through information obtained from the DMV; while business non-filers may be identified through business registration at the Secretary of State and other information available from outside sources. DOR does have automated processes that match IRS data to ITAS, but does not have automated matches with the DMV or the Secretary of State.

5.2.2 Risk Assessment

The DOR executives and staff are doing an admirable job of carrying out their responsibilities, in spite of the limitations of the systems and tools available to them. The base ITAS system is stable and operates on an established mainframe DB2/COBOL platform. Users access ITAS via a terminal emulator or on “green screen”. The document management facility (DCF) has limitations due to the age of the technology so DOR has investigated replacing DCF with new technology. However, funding for this initiative is not available at this time for either software or personnel to make the changes. The same lack of funding prevents DOR from investigating replacing “green screens” with GUI interfaces.

As noted above, ITAS lacks some of the functional features that would enhance its capabilities. The current strength of ITAS is its efficient and effective processing of transactions and the information it maintains on individual and business taxpayers. Enhancements are continually made to keep the system efficient and to add functionality as needs are assessed and prioritized. The department recognizes that the ITAS system is based on older technology and, as such, is starting the process of looking to the future when the ITAS system will need to be replaced. However, the current system provides a satisfactory foundation around which the department can continue to enhance its technology capabilities. The call center project, currently underway, will interface with the ITAS data to make the call agents more productive. Also, the department continues to pursue funding for data warehouse capabilities that will further improve the efficiency of the agency in the areas of compliance, collections and management reporting. The budget constraints/reductions during the past few years have limited the availability of funds to implement such projects.

6 CORE SYSTEMS CURRENTLY IN DEVELOPMENT

6.1 Current System Environment

In addition to the Core systems discussed in the previous sections, we also reviewed three systems which are clearly relevant to statewide financial reporting and payroll processing. These are the Department of Transportation (NCDOT) financial system, a Retiree Payroll System and Treasury's Core Banking System. These systems are somewhat different from the other Core systems, because these systems are in various stages of replacement. To that degree, we have assumed that the State will implement these systems using current best practices in those areas. These systems are also expected to be viable from a long-term perspective and to serve the State's needs for the foreseeable future. Accordingly, we have limited our analysis of these core systems to a review of the key core system interfaces and any major gaps.

6.1.1 Business Systems Improvement Project (BSIP)

6.1.1.1 Core System Purpose

NCDOT is an integral part of the executive branch. Given the unique capital-intensive nature of its operations and the need to track project financial information for federal reimbursement purposes, NCDOT has delegated authority to manage its own financial processes. This includes procurement, project / work order management, vendor payments, and monitoring actual expenditures relative to the budget. NCDOT has traditionally operated its own financial system. In addition, NCDOT has also historically run its own payroll system because of limitations in the Central Payroll System. DOT Payroll has been discussed in the HR/Payroll section of this report. NCDOT is in the process of replacing its outdated legacy financial system with a new ERP system supported by SAP software and may elect to replace the 30-year old DOT Payroll system with the SAP HR/Payroll module as part of its modernization effort. DOT's new system is referred to as the Business Systems Improvement Project (BSIP), often referred to as DOT-BSIP.

The purpose of DOT-BSIP is to improve fiscal-related processes and information within the NCDOT. More specifically, its objectives are to streamline work, improve fiscal and management reporting at all levels, provide flexible, usable systems that focus on NCDOT business needs, meet statewide reporting requirements, and reduce technical risk and current system maintenance issues.

The replacement of the old fiscal system was driven by several factors, including current system constraints, inability to align with the initiatives of some of NCDOT's strategic partners, special legislation requiring a new system, and opportunities for improving on NCDOT's response to changing business needs provided by new technology. The benefits of the implementation of such a system were to provide common business systems across NCDOT that will enable more effective use of resources, support business growth, leverage administrative costs, and provide NCDOT with a system flexible enough to meet the Department's business needs while ensuring OSC compliance as an NCAS agency.

6.1.1.2 System Status

DOT-BSIP was designed to replace the NCDOT Fiscal system. This project is a continuation of efforts that date back to the mid 1990s, when the initial discussions were held to determine a viable solution for replacing the DOT legacy system. The system implementation began on August 1, 2000, as a part of a five phase project. The implementation of DOT-BSIP is currently in its final stages of implementation with a go-live day of April 21, 2003.

6.1.1.3 System Interfaces

The Business Improvement Project has several planned interfaces to other core systems:

Core System in Development	Other Core System	Interface Type	Interface Direction	Data Description
BSIP	CMCS	Batch	Send	Deposits, Requisitions, Transfers (July 2003)
BSIP	CBS	Batch	Receive	Check Reconciliation
BSIP	BPS	Batch	Receive	Certified Budget (TBD)
BSIP	BRS	Batch	Send	Budget Revisions (TBD)
BSIP	DOT Payroll	Batch	Send	Payroll Data (July 2003)
BSIP	DOT Payroll	Batch	Receive	Journal Vouchers (July 2003)
BSIP	NCAS	Batch	Send	General Ledger File
BSIP	e-Procurement	Batch	Bi-Directional	Purchase Orders (TBD)

6.1.1.4 Current System Cost

The current budget for the DOT-BSIP project is $68,917,005. The annual cost for hosting of the SAP platform is $6,000,000 and the expected annual SAP license/maintenance fee is $1,200,000. The total project budget information was obtained from the project's monthly IRMC's Progress Reports dated April 1, 2003 and the other figures were provided by DOT.

The on-going support staffing costs could not be determined because BISP is not live and the estimated ongoing maintenance and operations costs have not yet been made available to the IRMC.

6.1.1.5 Summary Observations

Through the BSIP, NCDOT should be able to take advantage of the best practices inherent in the SAP ERP product. To that degree, we would not expect any major gaps in system functionality once DOT-BSIP is fully implemented. However, a couple of observations may be relevant here. First, NCDOT is currently required to dual process procurement transactions. Procurement transactions generated in DOT-BSIP must be manually re-keyed in e-Procurement until design issues are resolved between DOT-BSIP and e-Procurement. Therefore, NCDOT cannot take advantage of the e-Procurement features built into the SAP product.

Second, as the State considers its long-term options for the replacement of NCAS, it may be able to take advantage of the lessons learned from implementing an ERP software package as well as the work already done by NCDOT in customizing SAP to accommodate any State-specific requirements.

6.1.2 Core Banking System (CBS)

6.1.2.1 Core System Purpose

The Department of State Treasury (DST) is the official bank of the State. All deposits and disbursements are made through the Treasury. The Treasury is responsible for the appropriate investment of available funds in both short and long-term instruments. The current banking system processes deposits and clears warrants (checks) for all state agencies, as well as community colleges, school systems, universities, DMV, Clerks of Court, State Parks, and Boards and Commissions.

The Treasury is currently in the process of replacing its current banking system with a new Core Banking System. There were several factors that necessitated the replacement of the current system. The current system was developed in the 1970's and 80's, and therefore runs on outdated

technology. It is not integrated and is comprised of separate legacy systems and many of the interfaces are obsolete, resulting in inefficiencies. Processing is confined to a sequential flow and constrained by inflexible systems. There are too many manual procedures and the semi-automated solutions do not provide ready access to retrieve the information needed to perform required tasks. The current system is meeting the most basic needs, but is creating a high level of risk for the Department due to its lack of functionality and flexibility.

The Treasury determined that it needed to replace its aging, non-integrated banking systems in order to fix the problems identified above and as the official State Bank, to offer its customers, the agencies, the same service and modern technology as the commercial banks. Among other capabilities, Treasury also wanted to offer positive pay functionality to all agencies, and expand current on-line banking functions. An integrated core banking system will allow the DST to process transactions more quickly and accurately than with the current system. Security features and integration will result in a better ability to recognize and correct errors closer to real time. The open architecture will enhance the data integration across agencies, and the integrated system will improve the accessibility to information.

6.1.2.2 System Status

The Core Banking System (CBS) will replace several existing systems including the Bank and Budgetary System, the Disbursing Accounting System, the Investment Accounting System, and the Warrant Truncation System. Current system interfaces to the Cash Concentration System, CMCS, and the Electronic Warrant System will also be modified. Access to this system will be browser based for both external and internal users, and will be integrated with the current Bank Imaging System.

The software selected is Flexcube from i-flex solutions, Inc. The Flexcube software is used by many of the nation's leading commercial banks. It was chosen because of the flexibility it offers to accommodate the customization needed for the government environment.

Project Timeline

The project was initiated on September 1, 2002. Through June 2003, customization requirements will be identified, databases and interfaces will be built, and acceptance testing conducted. Training is scheduled for May 2003, and conversions will begin at the end of June, 2003. July 7, 2003 is the estimated date for discontinuation of the old systems. The rollout of on-line banking will be in August, and positive pay will be made available soon thereafter.

6.1.2.3 System Interfaces

The Core Banking System has several planned interfaces to other core systems:

Core System in Development	Other Core System	Interface Type	Interface Direction	Data Description
CBS	CPS	Batch	Receive	Positive Pay
CBS	CPS	Batch	Send	Check Reconciliation
CBS	ITAS	Batch	Bi-Directional	Cash Reconciliation
CBS	NCAS	Batch	Receive	Positive Pay
CBS	NCAS	Batch	Send	Check Reconciliation
CBS	DOT-BSIP	Batch	Send	Check Reconciliation
CBS	CMCS	Batch	Receive	EOM Budget Code Balancing
CBS	CMCS	Batch	Send	Interest Posting
CBS	CMCS	Batch	Receive	Deposits, Requisitions, Transfers

6.1.2.4 Current System Cost

Core Banking is currently under implementation with an implementation budget of $4,786,928 million. Annual operation and maintenance costs are estimated to be $246,275, with other annual Software Development Life Cycle Costs (enhancements) to be approximately $100,000. The annual

operations and maintenance costs were obtained from the IRMC project concept document for Core Banking.

6.1.2.5 Summary Observations

The Core Banking System represents a state of the art banking system, built on open system architecture. This will facilitate easy integration with any replacement statewide financial system. Based on the information we received over the course of this project, it appears that CBS is on schedule. DTS does not anticipate any issues with regard to either the CBS implementation or its continuing operations.

6.1.3 Retiree Payroll System (RPS)

6.1.3.1 Core System Purpose

The Department of State Treasury (DST) is responsible for processing the retiree payroll. The Retiree Payroll System (RPS) provides monthly payments of retirement benefits to retirees or beneficiaries of retirees. The system is supported and maintained by the DST Systems Development Group, which is employed by the North Carolina Retirement Systems Division. RPS also summarizes annual payment data for federal income tax reporting and updates the membership database to indicate that the member has retired. The retirement system currently has 650,000 members and manages $48 billion dollars through the administration of six defined benefit public employee retirement plans. These six plans include:

- Teachers and State Employees Retirement System
- Consolidated Judicial Retirement System
- Legislative Retirement System
- Firemen and Rescue Workers Pension Fund
- National Guard Pension Fund
- Local Government Employees Retirement System

Combined, it is the 9th largest retirement system in the world. The system provides monthly payments for 169,000 retirees and their beneficiaries.

The retirement system is actually comprised of seven different subsystems as follows:

- Active Members Contribution System,
- Retirement Annuity Payroll System,
- Refund Transition System,
- Refund Payroll System,
- Retirement Transition System,
- Contributory Death Benefit System,
- Retirement Imaging System,
- Retirement Data Warehouse
- Disability System

The Department of the State Treasurer has “lost its appetite” for maintaining or updating the current systems through incremental enhancements. While the incremental enhancement process has been successful in the past, the incremental enhancement process is no longer viable. The current retirement systems are built on dated technology and have many issues including:

- Current programming language, COBOL, is outdated and it’s difficult to find programmers
- There is not a tight linkage between the retirement subsystems. For example, their call center has a 32% abandonment rate (down from 50%), caused in large part by the fact that their help desk employees cannot view all of an employee’s data in one system
- The systems are hard to manage and processes aren’t documented well. It’s very difficult to make changes. The person who built the original system retired 2 years ago.

- Many of the functional requirements and enhancements needed by the State are changing too quickly for the legacy retirement system's personnel to deal with
- There is no automatic feed of HR information from PMIS. Most retirement data is keyed into the system directly by the employee or HR representative. They have to recreate all data that is in other HR systems, with the exception of contribution data
- The Retirement Systems Division currently receives data in every media possible (e.g., paper, fax, electronically, face-to-face meetings, tape, disk, phone, etc.) from 1,200 different agencies (this includes local government)
- There are also issues of data integrity and disparate data formats in separate databases (causing long processing times)
- There are no web-based employee self-service options. This causes volume issues and drains resource capacity
- DTS is facing a huge increase in retirees (e.g., retirements in January 2003, were up 36% compared to January 2002) When the baby boomer generation begins to retire, they won't be able to keep up with the increased work load in their current environment.
    - One of the primary concerns with the influx of retirees is the fact that they can't process the retirement information quick enough to get people's checks to them on time. A State of North Carolina employee is only required to give 1 day's notice when retiring (e.g., of the 2000 employees that retired last July, 800 didn't receive their check the first month)

Technical Platform: The Retiree Payroll System is approximately 23 years old and is a custom developed package which has been converted from the SIPS to the DST software. It was developed using the following programming languages: COBOL, CICS, IMS and JCL. The system operates on a mainframe OS/390 platform. The imaging subsystem uses a MS Windows 2000 Enterprise Server. It is supported by the SQL Server database. The other retirement subsystems use a variety of technologies including IBM Websphere, Java, EJB, Visual Basic, Oracle, MS Visual InterDev, and Crystal Reports,, .

6.1.3.2 System Status

The Retiree Payroll System was implemented as a custom system in the late 1970s. It along with many of the other retirement subsystems is becoming obsolete. To address these issues, the Department of the State Treasurer commissioned a project to assess the existing IT system environment and business processes used in the Retirement Systems Division. This project, called Integrated Retirement System Planning (IRSP) began in July, 2002. The purpose of the assessment is to determine what business processes need to be improved or changed and to identify IT strategies that can be utilized to achieve better levels of efficiency and improve functionality of the current systems. The result of this assessment will be used to develop an RFP for the implementation of a new integrated retirement system that is planned to be phased in between 2003 and 2005.The RFP is scheduled to be issued in the spring of 2003. Beyond expanding the functionality and improving the efficiency of the current retirement payroll system, the new integrated system will also replace other existing retirement-related systems, including: Active Members Contribution System, New Retiree Transition Tracking System, Refund Transition System, Refund of Contributions Payroll System, Contributory Death Benefit System, Retirement Accounting Disability Overpayments System, Retirement Imaging System, Retirement Data Warehouse and the Retirement Disability Automation System.

6.1.3.3 System Interfaces

The Retiree Payroll System has interfaces to several other core systems:

Core System in Development	Other Core System	Interface Type	Interface Direction	Data Description
RPS	CPS	Batch	Receive	Misc. Payroll Data
RPS	CBS	Batch	Send	Positive Pay Data
RPS	NCAS	Manual	Send	Summary Retirement Payroll Information

6.1.3.4 Current System Cost

The current Retiree Payroll System will be replaced by the integrated retirement system. The costs of implementing the integrated retirement system will not be determined until the implementation vendor is selected from the soon to be released RFP.

6.1.3.5 Summary Observations

The State has identified the concept of an enterprise approach as a focus in its ongoing IT strategy. While supporting the enterprise concept, the DST believes the current retirement systems are functionally obsolete and finds it necessary to move forward with IT strategies that can be utilized to achieve better levels of efficiency and improve functionality through a new Integrated Retirement System. Integration of the resulting system through the use of statewide open architecture standards will make future integration with other core business systems easier; however, statewide standardization and understanding of integration needs and methods are essential to long-term enterprise planning. The more core systems that are developed independently, the more difficult the long-term enterprise solution will be to achieve.

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7 E-PROCUREMENT

7.1 Current System Environment

7.1.1 State Wide e-procurement System

The Statewide e-Procurement system, which has been in operation since 2001, was envisioned to provide procurement savings and processing efficiencies to the State. For purposes of this study, a limited review was performed to assess the system functionality and its operational compatibility to the NCAS. At the present, the State is involved in ongoing discussions on enhancements to system functionality with the systems integration vendor. Therefore, an evaluation of the gaps assumes the satisfactory outcome of those discussions and resolution of any outstanding items.

While key administrators of the e-Procurement system provided insight into the general operation of e-Procurement, no discussions were held with users of the system. To that degree, our evaluation of the e-Procurement system was further limited.

7.1.1.1 Core System Purpose

The e-Procurement system is based on a commercial off-the-shelf (COTS) product called Ariba. Intended to be the statewide procurement system, the e-Procurement system was designed to provide the State with electronic term contract catalogs and the ability for users to purchase these items on-line through an efficient searching process. The expected benefits from the e-Procurement include:

- Reduce prices for state purchases through the aggregation of purchases for like items from various agencies
- Improve management capabilities of statewide and agency contracts
- Reduce the procurement cycle time by incorporating standard business rules such as purchase order approvals
- Improve operating efficiencies for the State's vendors via the electronic distribution and exchange of purchasing and payment information
- Facilitate and optimize purchases from HUB vendors for goods and services sold to the State and its agencies
- Provide statewide procurement history to facilitate volume-based discount contracts

7.1.1.2 System Capabilities

The implementation of the e-Procurement system has provided web-enabled requisitioning, approval routing, purchase order transmission, receiving and e-Quote processes. Additional functionality such as the e-Bid, reverse auctioning, and procurement card use with e-Procurement is not yet available. Currently, most goods and services previously purchased in NCAS via a purchase order are now procured within e-Procurement. Because the NCAS is the State's core business system, a detailed interface from e-Procurement to NCAS was developed to pass purchasing data required to complete the accounts payable and inventory processes in NCAS. NCAS processes all invoices and receives requisition, purchase order and receipt information from e-Procurement to allow for the continued automated invoice matching process.

The State's term contract items are available in the electronic catalogs which users search to create orders. Requesters can also place non-catalog orders when the item is not available within a catalog. Vendors register on-line within the e-Procurement system and can also certify their HUB status if applicable. Because the accounts payable process is still performed within the NCAS, a separate vendor file is required in the NCAS. The interface design feeds the NCAS vendor master file through a nightly batch update. Because of the difficulties with synchronization of the e-Procurement vendor file with the NCAS vendor file, NCAS currently only accepts new vendors from e-Procurement. Changes made by vendors to their vendor record in e-Procurement are not sent to NCAS electronically. These changes must be manually made to the vendor record in NCAS.

7.1.1.3 Best Practices

The e-Procurement system was evaluated for both operational and processing best practices. Outlined below are gaps identified between Best Practices and the e-Procurement system as it is currently implemented:

Organizational Structure - When looking at "best practices" as it relates to e-Procurement, consideration must first be given to the structure of the organization. To fully gain the benefits of utilizing the Ariba technology, the State should have a centralized procurement organization, which is focused on strengthening the e-Procurement process and on strategic sourcing. Additionally, emphasis should be placed on ensuring standardization of procurement practices and processes.

In a best practice environment, a centralized procurement organization should exist and its mission is to provide statewide oversight for the State of North Carolina procurement process. Its focus should be on the establishment and governance of policies and procedures that ensure a fair and open process for all state entities. This organization should not execute purchasing transactions; but rather purchasing execution should be decentralized at the agency level. The central procurement group should be focused on developing supplier partnerships, contract negotiation, content management and strategic analysis.

To operate at the best practice level, the State should seek to maximize spend through the e-Procurement system by eliminating all alternative purchasing methods for e-Procurement commodities. In the State of North Carolina, this equates to shutting down NCAS for PO generation, expanding the procurement card use to the e-procurement environment, and limiting the purchasing outside the e-procurement environment. This would allow the State to aggregate statewide spend for improved data analysis which should be leveraged for strategic sourcing and contract negotiations for cost savings. The State of North Carolina has been successful in this area as it pertains to NCAS agencies. The challenge going forward is to get a critical mass of universities, community colleges and LEA's to adopt the system. Another important aspect of a strong process is to ensure that sufficient suppliers are available to users.

Strategic sourcing is a concept that allows organizations to get additional cost savings on certain commodities. The traditional implementation of strategic sourcing is to get to the best value sole source supplier for a commodity. However, this model runs counter to state government's procurement goal of promoting commerce with a variety of state suppliers. With this is mind many states have achieved the benefits of strategic sourcing by inviting all vendors including historically underutilized businesses (HUBs) to participate in the bid process. Multi-year contacts are awarded to 3-4 'best value' vendors. Inviting all vendors to participate allows the State to foster competition while inclusively promoting commerce. Awarding to 3-4 best value vendors allows a state to achieve the benefits of strategic sourcing initiatives and also reduces the number of catalogs needed to be searched by the users. This would also ease some of the issues with cross vendor searching in that there would be fewer vendors. Catalog and Supplier Managers would also have fewer vendors and catalogs to create and maintain allowing them to focus more time on strategic activities.

Best practice organizations also have a standard e-Procurement application, which is not customized for each agency or state entity. Having a common application supports the notion of having standard procurement processes across the State. In those situations where customization is required, the central organization should determine how that process might be brought in line with other entities' processes. Similarly, e-Procurement should integrate with a common legacy system which allows for simplified interface efforts (e.g., data sharing, data integrity, etc.). However, because of the varied accounting structures used by North Carolina entities, this approach is not feasible for the State of North Carolina.

System Supported by a Fee Structure

North Carolina's early entry into the E-Procurement environment was approached utilizing a "self-funding, fee based" structure which requires a fee from vendors using the system. That fee is currently set at 1.75% per dollar of "spend" placed through the system by purchase order. Although

the “fee for use” approach was promoted as the “best practice” at the time of implementation, experience in other states has yet to demonstrate any measurable successes. This can be attributed in large part to vendor reluctance to participate in a model that charges a transaction-based marketing fee. In North Carolina, this issue has been significant in the reluctance of many important vendors resisting participating in e-procurement, especially where a vendor is the sole source of a required commodity. In addition, it appears that some participating vendors have adopted a policy of passing the fee back to the State through price increases. Some states are adopting an alternative solution that provides for an annual registration fee for participation. Paramount to the success of an e-procurement system is vendor participation, and that must occur by demonstrating to the vendor the value received for the fee imposed.

Additionally, community college, universities and local government revenues were considered in the business model development. However, at present, universities do not contribute any revenues, while community colleges and local governments provide a relatively small amount. Further, neither entity is legislatively mandated to use e-Procurement. In fact, these entities by and large have had issues using the system. Community colleges and universities have indicated they will not use the system until it is a fully integrated with their specific administrative environments in order to avoid dual entry. Based on our interview with the e-Procurement Project Director, community colleges have accepted a “Lite interface” approach which if adopted will allow spend to flow through the system but will result in a non standard e-Procurement system design.

The success of the system also lies with end users adoption. However, the State must continue to update catalogs which are user friendly, easy to search and contain accurate timely data.

Automated Approval - Best practice organizations have an automated approval process with common level and dollar thresholds statewide. Convoluted approval paths are replaced with simplified processes based on chain of command and self approvals. Self approvals allow end users to request certain commodities within a pre-determined dollar threshold without requiring supervisory approval on the requisition. The dollar threshold can be set to mirror individual procurement card limits or can be arbitrarily set. This not only empowers end users but also allows approvers to focus on managing exceptions. The state agencies using e-Procurement have reduced the number of approvals during their implementation however it is not anticipated that automated approval will be adopted.

Training - Lastly, best practice organizations also focus on training. These organizations employ role based training and base delivery methods on the user base. Additionally, during implementation a local “SWAT” team is deployed to each location during rollout to deal with implementation issues rapidly. After the rollout, long term support is rolled into existing support structures and a single point of contact is set up for the end users. Refresher training should be made available via on-line methods and each user should be provided with job aids for ready reference. This training methodology was used by the State of North Carolina but has experienced mixed results dependant on the sophistication of the user.

7.1.1.4 Other Pending System Enhancements

7.1.1.4.1 NCAS Interface Enhancements

The interface between the NCAS and the Ariba-based e-Procurement system lacks some functionality necessary to ensure an efficient business process for the NCAS users. . This is a critical interface to allow procurement activities to be coordinated with the State’s budgetary control and financial management processes. Based on the interviews conducted, the following modifications need to be made in order for the NCAS and e-Procurement systems to function efficiently for the NCAS users:

1. Develop an electronic process to compare vendor record changes made by suppliers in e-Procurement to the corresponding vendor record in NCAS before passing change data to NCAS.

If changes are not in sync with the vendor information in NCAS, allow Remit-To data to be edited by the State.

2. Modify the Ariba product to allow receiving tolerances to be set for each purchase order line, and passed to the corresponding NCAS purchase order line.

3. Modify the NCAS / e-Procurement interface to pass individual receipts to NCAS, as opposed to updating the received-to-date quantity.

4. Modify the NCAS / e-Procurement interface to allow the NCAS Payment Basis to pass for each purchase order line.

5. Modify the NCAS / e-Procurement interface to include a table for converting and passing the buyer ID from E-Procurement to NCAS.

6. Establish a unit of measure (UOM) conversion table for NCAS inventory transactions to allow for NCAS warehouse items to be stored in a different UOM from the requisitioned UOM.

7. Modify the NCAS / e-Procurement interface so that NCAS can send an indicator to e-Procurement to close service orders to receiving automatically.

8. Modify e-Procurement to default values, such as ship-to code, accounting distribution and item description (for non-catalog transactions), on requisitions for NCAS inventory items.

9. Modify vendor registration to allow vendor business characteristics to convert to the State's prescribed official HUB designations, thereby shortening the vendor registration process. Also, add fields within Vendor Registration to facilitate HUB Office certification of HUB vendors.

10. Enhance the e-Procurement Ad Hoc Reporting application to extract all e-Procurement data elements and make them available for ad hoc reporting.

7.1.1.4.2 General System Enhancements

Based on the interviews conducted, the following items were identified as enhancements that are planned or already in progress. Many of the enhancements listed below are logged as change requests. The interviewees were not aware of when these enhancements would be tested or slated to go into production. However, they all agree strongly that these enhancements will increase user satisfaction and adoption.

1. *Improve the system and processing response time*

This request/enhancement was noted as a high concern by all e-Procurement users. Reasonable processing speed and response times are an expectation of this system.

2. *Continue to improve catalog search for end users by cleansing catalog content*

This request/enhancement was noted by each person interviewed. The State has made great strides to date in cleansing the catalogs and making them more user friendly however, there is still work to be done here. This was not listed as a change request but rather something that the Contract Specialist and Supplier Managers are constantly working to improve. The ability for end users to find the items needed in a time efficient and "painless" manner is paramount to user adoption and continued user satisfaction.

3. Tracking contract purchases

The Contract ID field will be changed from free text to a drop down field. The drop down will contain a listing of all Contract ID's. The end user will select the correct Contract ID from this listing when creating a non catalog requisition. This will facilitate tracking spend by contract and will identify users that may require training on searching the catalogs. From a best practice perspective, this information allows the State to determine contract compliance and pinpoint the root cause of off-contract spending. Once the off contract spend is captured, it can be analyzed to determine the

cause (e.g., non contract item, item not found in catalog search, end user needs training, etc.) and a necessary corrective action.

4. Ability to Change Punch-out Catalog Item Pricing
This enhancement addresses the fact that the price of an item added to a requisition from a punch-out site cannot be changed. However, catalog purchase order (PO) price changes are possible and because prices can fluctuate, noncatalog buying is often used rather than the catalog. For many technology based items, the prices change quite frequently. Currently, the buyer can not go in and change the price if the item was selected from a supplier's punch-out (website) site and this leads to a PO that has an extended price which can not be modified. When the invoice is received and the price is different, a 3-way match error causes an Accounts Payable exception process.

5. Increase the search bandwidth
At present there is a limitation of 3000 line items when doing searches on the e-Procurement system. Some agencies run monthly reports which return more than 3000 lines, and these agencies cannot utilize the reporting features of the system. There is, therefore, a need to increase the bandwidth of searches to include more than 3000 line items. The system performance and response time would need to be considered before such a change is implemented.

6. Granting Contract Specialist access to Ad-Hoc Reporting
Currently contract specialists at both IT Procurement and the Division of Purchase and Contract do not have access to ad-hoc reporting. The managers at these organizations are the only users with access and must run reports for the department. It would be more efficient if the contract specialists could run their own reports to track and monitor the compliance of their contracts.

7. Re-usable e-Quote template
Currently when users create an e-Quote they must create and complete a new template that is sent to vendors. Enhanced functionality would permit the template and data to be saved for reuse by the users with the next e-Quote preparation process. This would increase the efficiency of this process by saving the processor time and reducing data entry errors.

7.1.1.5 Risk Assessment

7.1.1.5.1 Long-term Viability of the Systems

Based on our interviews, most parties agree that process and system gaps identified above should be addressed and all users need to be live on the system before the full business benefits can be realized.

The success of the system lies with end users adoption. The State must continue to build catalogs which are user friendly, easy to search and contain accurate timely data. If this does not occur end users will either resist the system or not use the system correctly. This risk has been recognized and is being addressed by increased involvement of Contract Specialists with the catalog development and maintenance process. The system must also provide user efficiencies during the procurement process. If the State is going to realize the anticipated benefits of the e-Procurement system, it must ensure that the NCAS interface requirements are met, that the proposed "Lite" interface is successful, and that accepted business processes are in place.

Based on the assessment made in this study relating to e-Procurement, the State can investigate the following functionality to achieve additional benefits from the system:

1. Procurement card processing
2. Asset Management integration
3. Strategic Sourcing
4. Reverse Auction
5. Elimination of ITS and P&C website which currently provides term contract data for non-E-Procurement users

6. Elimination of IPS and Vendor link which currently supports the State's bidding process
7. Vendor Management which would improve the quality of the vendor information for both NCAS and e-Procurement

1. Procurement Card Processing

At present the State of North Carolina is not leveraging the pre-existing procurement card functionality of the Ariba e-Procurement technology. If the State were to utilize this functionality the benefits would include:

1. Reduced administrative expense associated with procuring low dollar items
2. Enabling two way matching - a procurement best practice
3. Ability to negotiate additional price discounts based on the fact that vendors will be expected to receive quicker payments.

In most organizations (including state government), these benefits outweigh the reduction in float. It is our understanding that the State is considering implementing procurement cards in future releases, which would bring the State further in line with best practice. A point of caution however, is that vendors typically pay a bank fee to participate in this program. Given the State's current business model, this would result in participating vendors being assessed two fees; the first to do business and the second to the bank for payment.

2. Asset Management Integration

The e-Procurement system is designed to allow the acquisition of fixed assets to be recorded. However, based on our understanding the State is not leveraging any of the requisition to payment data from e-Procurement in the tracking of those assets. Based on out of the box functionality the State could capture, track and tag the purchase and receipt of physical assets within the system. With manageable customizations the e-Procurement system can also handle the retirement and disposal of assets. An interface or integration program if developed could push the asset data gathered in e-Procurement to a receiving asset accounting and or asset management system (NCAS). This would in effect give the State a centralized asset management process which ties the physical asset to the financial asset, thereby positioning the State of North Carolina to standardize and optimize the asset management process.

3. Strategic Sourcing

Per the discussion in the best practice section, the State has an opportunity to engage in Strategic Sourcing initiatives to achieve cost benefits. The trend in government is to take a modified approach to Strategic Sourcing and achieving savings. A spend analysis would need to be performed to measure the exact savings the State of North Carolina could achieve. Also note that it is a best practice to perform a strategic sourcing effort either prior to or during an e-Procurement implementation.

4. Reverse Auction

Implementing reverse auction functionality will provide the State with opportunities to get better pricing on certain very limited commodities. To be effective the following reverse auction best practices should be considered:

Strive for participation of 5 vendors

- ✓ Pre-qualify vendors through a Request for Information (RFI) or Request for Qualification (RFQ), when possible
- ✓ Creation of a different pricing dynamic with help of the new vendors
- ✓ Stress on vendor education and confidentiality
- ✓ Conduct training and a "mock" auction for first-time vendors
- ✓ Ensure that the RFP/ITB have clear requirements, detailed specifications and or estimated volumes
- ✓ Monitor auctions; vendors may have questions or technical difficulties may arise
- ✓ Develop a pricing model to allow for real-time analysis of vendor bids and potential savings

In addition, the following are Reverse Auction benchmarks that the State should consider:

- ✓ Savings typically range from 5% to 25%+ and are dependent on multiple factors (e.g., type of commodity, current prices, current vendor, etc.)
- ✓ Auctions usually run 1 to 2 hours with extensions, depending on the complexity of the commodity
- ✓ Most bidding activity occurs in the last 15 - 30 minutes
- ✓ Incumbents typically maintain a small "price premium" to reflect switching costs / value of known relationship

5. Eliminate contract data from the IPS and P&C websites
Currently, contract data is maintained in three places, e-Procurement, e-Procurement public view and IPS/P&C websites. This is clearly duplicative and requires a lot of FTE time to keep the data in sync on the various sites. Additionally, end user perception is that the contract data on the websites is more accurate than that in e-Procurement. Once all contract data is loaded into e-Procurement technically, the ITS and P&C websites can be taken down. However, before this should happen, users should be trained on how to do advanced searches in e-Procurement as the search capability on the websites is much broader and simpler than in e-Procurement.

6. Eliminate IPS/Vendor Link via e-Bid functionality
The State of North Carolina like most states must provide a process for competitive bidding for large contract purchases. Currently a stand alone system, IPS and Vendor Link, are utilized to meet this requirement since the e-Procurement system as designed cannot meet this requirement. The initial scope of the project did include e-Bid functionality which would have addressed (with some customizations) the requirements fulfilled by IPS and Vendor Link. Once e-Bid functionality is brought on line the State can eliminate the IPS and Vendor Link systems. In addition to eliminating a system the State has an opportunity to streamline the process for its vendors. Currently, vendors must register in e-Procurement and Vendor Link to do business with the State and HUB vendors must also register in two additional systems. Further, the required data and format of the systems are different which causes some concern and pain for some vendors. The elimination of Vendor Link would also help the vendor management process by only requiring that vendor information be maintained in one system for the procurement process (beyond the payment system).

7. Vendor Management
As it relates to vendor management, the State has an opportunity to improve to vendor update process. As a process workaround to an existing system deficiency, the role of the Supplier Manager or Contract Specialist can be expanded to include working with the supplier to ensure that the updated data is validated (i.e., whenever a vendor makes a change to an existing vendor record, as a matter of process the supplier manager should verify and validate the change prior to it being accepted into the system). This would be an intermediate measure to reduce the impact of the existing issues with the vendor master and the issues with the NCAS vendor interface.

7.1.1.6 System Interfaces

The e-Procurement System has several interfaces to other core systems:

Core System in Development	Other Core System	Interface Type	Interface Direction	Data Description
e-Procurement	BSIP	Batch	Bi-Directional	Purchase Orders (TBD)
e-Procurement	NCAS	Batch	Send	Vendor Records
e-Procurement	NCAS	Batch	Send	Requisitions & Purchase Orders
e-Procurement	NCAS	Batch	Receive	Code Validation
	NCAS	Batch	Bi-Directional	Funds Availability

8 CORE SYSTEM INTEGRATION AND TECHNOLOGY

8.1 Information Technology Strategy

The State of North Carolina recognizes the many advantages that accrue from employing the enterprise approach for managing, implementing, and operating its technology infrastructure ad common business services. The consolidation of technical infrastructures and business systems that are used in common by multiple agencies enables the State to realize cost savings from economies of scale, synergies of processes, and efficiencies of focus, and allows smaller organizations to share equally in the benefits of more advanced and robust capabilities that they would not be able to enjoy acting individually.

The **Statewide Information Technology Strategy**, approved by the Information Resource Management Commission in February 2003, is provided below and endorses the enterprise approach. It addresses the State's need to move to a more shared services concept for technical infrastructure components and common business applications to increase functionality, reduce inefficiencies, provide agility and flexibility to accommodate changes, achieve more value from expenditures, and better manage technical operations and business processes.

8.1.1 North Carolina's Statewide IT Strategy

Strategy 1 – Strengthen Customer Service through IT

- Initiative 1 – Identification of e-government barriers and the development of action plans to overtake them.

Strategy 2 – Strengthen Statewide Enterprise IT Approach

- Initiative 1 – Completion of a comprehensive and continuous inventory of all IT assets and investments.
- Initiative 2 – Use of statewide configuration standards for commonly used assets and adopt best practices, standards and tools for managing them. Develop purchasing policies to maximize discounts.
- Initiative 3 – Support consolidated management of the State's multiple server based data centers.
- Initiative 4 - Accelerate the completion and deployment of a new IT investment process and enterprise funding model.
- Initiative 5 - Identify new opportunities to expand and develop strategic partnerships

Strategy 3 – Strengthen and Validate Statewide Enterprise IT Security and Privacy

- Initiative 1 – Advocate the completion of a comprehensive statewide enterprise IT security assessment.
- Initiative 2 – Expedite the development, completion, and approval of a comprehensive enterprise-wide set of standards, policies, and procedures for enterprise IT security and validation of agency security practices.
- Initiative 3 - Limit certification of IT projects to those that have incorporated the appropriate levels of IT security.
- Initiative 4 - Provide cost effective statewide security management services for the agencies.

Strategy 4 – Identify and Assess State Enterprise IT Infrastructure Readiness

- Initiative 1 - Conduct continuous and ongoing IT infrastructure readiness assessments.
- Initiative 2 - Coordinate periodic agency surveys of agency IT business continuity plans.

- Initiative 3 - Development of adequate disaster recovery and business continuity provisions for centralized mission critical systems
- Initiative 4 – IRMC recommendations for alternate sourcing options (outsourcing) in conjunction with a comprehensive framework for analyzing potential outsourcing alternatives developed by the CIO.
- Initiative 5 – Research, develop, and fund programs for attracting and retaining qualified IT professionals.
- Initiative 6 – Perform a study of the State's core business management (budgeting, financial, and human resource) systems.
- Initiative 7 - Transition the State to a single statewide network telecommunications infrastructure.

Strategy 5 – Identify and Assess Statewide Enterprise IT Needs and Funding

- Initiative 1 – Examine ways to leverage existing state government resources and evaluate various IT funding concepts.
- Initiative 2 – Development of a statewide IT needs and funding plan to create an IT reserve fund and an enterprise funding strategy.
- Initiative 3 – Develop provisions for enterprise infrastructure funding that provides common technical services and shared technical infrastructure, including security services, disaster recovery and business continuity planning.
- Initiative 4 – Develop provisions for replacing/updating mission critical systems due to obsolescence or lack of technical support.
- Initiative 5 – Develop procedure for reviewing funding requests and examining ongoing funding certifications and expenses from a statewide perspective

8.1.2 Statewide IT Strategy Summary Conclusion

The strategies and actionable initiatives identify the need to study the State's core business systems (Strategy 4, Initiative 6) and provide the foundation to evaluate replacement or upgrading of critical systems based on obsolescence or lack of technical support (Strategy 5, Initiative 4). As indicated in this study, the replacement of core systems has already been initiated by the Department of Transportation and Department of the Treasury based on the severity of their need. These departments are in the forefront of the effort to modernize their core business systems but have done so without the current strategies being fully in place. To benefit those agencies with systems in progress or soon to be in progress, the sooner initiatives for statewide security management and statewide enterprise standards are complete the sooner they can be incorporated into ongoing or upcoming system implementations.

Please reference the **Statewide Information Technology Strategy** for full details of the State's IT Strategy.

8.2 Technical Architecture

8.2.1 Statewide Architecture Standards

The following statement is from the North Carolina 1996 Statewide Architecture Strategy document:

"A technical architecture serves as a blueprint for the design of information systems, and for the computing, communications, and management infrastructure required to support these systems. The statewide technical architecture will allow individual departments to respond to specific business needs using common components, thus ensuring that information systems will be shared and managed on a statewide basis."

This statement is still true today and the State has been and continues to make strides to improve their technology architecture. The State has defined a Statewide Information Technology Architecture with the most recent version being updated in the year 2000. The architecture provides the standards, implementation guidelines and recommended best practices for agencies to follow when implementing and managing information systems. The Information Technology Architecture helps agencies develop a technology infrastructure to cost effectively support rapid change in business and administrative processes across the State. The technology infrastructure standards, although complete, are in the process of being updated. The February, 2003, **Statewide Information Technology Strategy** notes that the IRMC is moving with a "sense of urgency to improve its approach to the development of new policies, procedures, standards and the acclaimed State Technical Architecture (STA)". The standards are or will soon be updated to support agencies in their IT endeavors.

The existing core business functions are currently being performed by disparate systems, with most portions of the systems being developed prior to the existence of the current standards. Some agencies have upgraded or are in the process of upgrading pieces of there core systems to meet some of the architecture standards. For example, the Office of State Personnel is upgrading system modules to a relational database as time permits. Other agencies however are making changes to web enable their systems but are using different technologies in the process. The upgrades will generally help to extend the immediate life of the systems but are also creating non standard islands of technology that will be more difficult to support over time. Although the agencies are supporting their solutions, items like statewide security, business continuity and disaster recovery execution become more complex as functions expand further outside a common structure.

Because some agencies found themselves unable to support their obsolete and often fragmented systems, several have initiated projects to replace their legacy solutions. To minimize the long term effects to a future business infrastructure enterprise solution, it is vital to finalize and establish statewide enforcement mechanisms. This effort will help to minimize any additional system fragmentation and silo development. This need has been recognized by the State and as part of the Statewide Information Technology Strategy a focus is on the use of true enterprise solutions that use common technical service and shared technical infrastructure.

The most recent version of the Statewide Technology Architecture is available at http://irm.state.nc.us/techarch/cover.htm.

8.2.2 Core System Profiles

Presented below is a summary profile of 14 core systems reviewed during SBIS project. This chart does not provide detailed information on any system but is intended to provide an overview of several key categories including the age, primary development language, hardware platform, and number of interfaces to other core systems. Interface details are contained in Section 8.2.3, Core System Interfaces and additional detail on the core systems can be found in the Core System Questionnaires provided on the OCS web site at http://www.osc.state.nc.us.

Core System Profiles

System Name	Functional Area/ Description	System Age	Custom or Package	Primary Develop-ment Languages	# of end users	Environment (mainframe, Web, client/ server)	Hardware Platform	Core System Interfaces
BPS – Budget Preparation System	Core Financial	20 years	Custom	COBOL	300	Mainframe (ITS)	ITS Enterprise Server	9 interfaces to 5 core systems
BRS – Budget Revision System	Core Financial	20 years	Custom	COBOL	300	Mainframe (ITS)	ITS Enterprise Server	9 interfaces to 5 core systems
SCS – Salary Control Reserve System	Core Financial	20 years	Custom	COBOL	300	Mainframe (ITS)	ITS Enterprise Server	9 interfaces to 5 core systems
NCAS – North Carolina Accounting System	Core Financial	8 years	Package (GEAC) with custom add-ons	COBOL	5600	Mainframe	IBM OS/390	16 interfaces to 9 core systems
CMCS – Cash Management Control System	Core Financial	20 years	Custom	COBOL II, Extrieve R6	1000	Mainframe	IBM OS/390	3 interfaces with 3 core systems
PMIS – Personnel Management Information System	HR/Payroll	25 years	Custom	COBOL	5000	Mainframe and web-based	Windows NT	8 interfaces with 6 core systems
ELTS – Employee Leave Tracking System	HR/Payroll	2 years	Custom	JAVA, HTML	2000	Web-based	Windows NT	1 interface to 1 core system
CPS – Central Payroll System	HR/Payroll	20 years	Custom	COBOL	69 payroll units	Mainframe	IBM OS/390	6 interfaces with 4 core systems

System Name	Functional Area/ Description	System Age	Custom or Package	Primary Develop-ment Languages	# of end users	Environment (mainframe, Web, client/ server)	Hardware Platform	Core System Interfaces
DOT Payroll System (Legacy)	HR/Payroll	30 years	Custom	Assembler	529	Mainframe	ITS – OS/390	5 interfaces with 4 core systems
ITAS - Integrated Tax Administration System	Tax	9 years	Package (Accenture's TAS) with custom add-ons	COBOL and Easytrieve	800	Mainframe	IBM 3900	1 interface with 1 core system
BSIP – Business Systems Improvement Project (DOT Accounting System)	Core Financial / In Progress	In Implemen-tation	Package (SAP)	N/A	4000-5000	Client/server	Outsourced to Blue Star Solutions, platform used are: SUN UNIX, some NT servers, IXOS	5 interfaces to 5 core systems
RPS – Retiree Payroll System	Other / In Progress	23 years - New RFP being Released	Custom	COBOL, CICS, IMS, AND JCL	N/A	Mainframe and client/server	OS/390; Imaging subsystem on a Windows Server	2 interfaces with 2 core systems
CBS – Core Banking System	Other / In Progress	In Implemen-tation	Package (FLEXCUBE)	HTML, Java/EJB, Orcl PL/SQL, Business Obj	1500	Client/server with web-access	Windows 2000 Enterprise Server	3 interfaces to 1 core system
State Wide e-Procurement System	Core Financial / In Progress	1.5 years	Package (Ariba)	Java and COBOL	5400	Mainframe and web-based	OS/390 and UNIX	3 interfaces to 1 core system

8.2.3 Core System Interfaces

To fulfill the needs of the State, the core systems providing Human Resource, Payroll, Budget, Financial, Procurement, and Tax and Revenue functions must interact with one another to communicate pertinent data. In most instances the data is communicated using a flat file that is generated during a scheduled batch (periodic and normally overnight) process. The file is then communicated to the other system using File Transfer Protocol (FTP), a middleware solution, or a common area on the network. In some cases, the manual reentry of duplicate data from one system to another system is being captured and considered a manual interface. In most instances any entries into a core system through the user interface are considered standard data entry and not captured with the system interfaces. In certain cases however where there exists a duplication of data and the information is vital to the core business functions, a manual interface is included as a system interface.

The core systems are very reliant on the interfaces to other core systems to function properly. Below we present a table of all the core-to-core system interfaces by functional area and core system.

HR/Payroll Core System	Interface Direction	Other Core System	Interface Type	Data Description
Central Payroll System – (CPS)	Send	PMIS	Manual	Non-standard Payroll Transactions
	Receive	PMIS	Manual	Personnel Data
	Send	NCAS	Batch	Personnel Expense Distributions
	Send	RPS	Batch	Misc. Payroll Data
	Receive	CBS	Batch	Check Reconciliation
	Send	CBS	Batch	Positive Pay
DOT Payroll	Receive	PMIS	Batch	Personnel Data on New Hires, terminations, and transfers.
	Receive	DOT-BSIP	Batch	Payroll Data (July 2003)
	Send	DOT-BSIP	Batch	Journal Vouchers (July 2003)
	Send	RPS	Batch	Employee and Employee Bank Information
	Send	CBS	Batch	Employee and Employee Bank Information
Employee Leave Tracking System – (ELTS)	Send	PMIS	Batch	Time & Leave Data
Personnel Management Information System – (PMIS)	Receive	BPS	Batch	Funded/Unfunded New Positions
	Send	BRS	Batch	Approved New Positions
	Send	CPS	Manual	Personnel Data
	Receive	CPS	Manual	Non-standard Payroll Transactions
	Send	DOT	Batch	Personnel Data
	Receive	ELTS	Batch	Time & Leave Data
	Receive	NCAS	Batch	NCAS Account Validation
	Send	NCAS	Batch	Personnel Data
	Receive	SCS	Batch	Salary Reserve
	Send	SCS	Batch	Position Salaries & Counts
	Send	SCS	Batch	Salary Changes

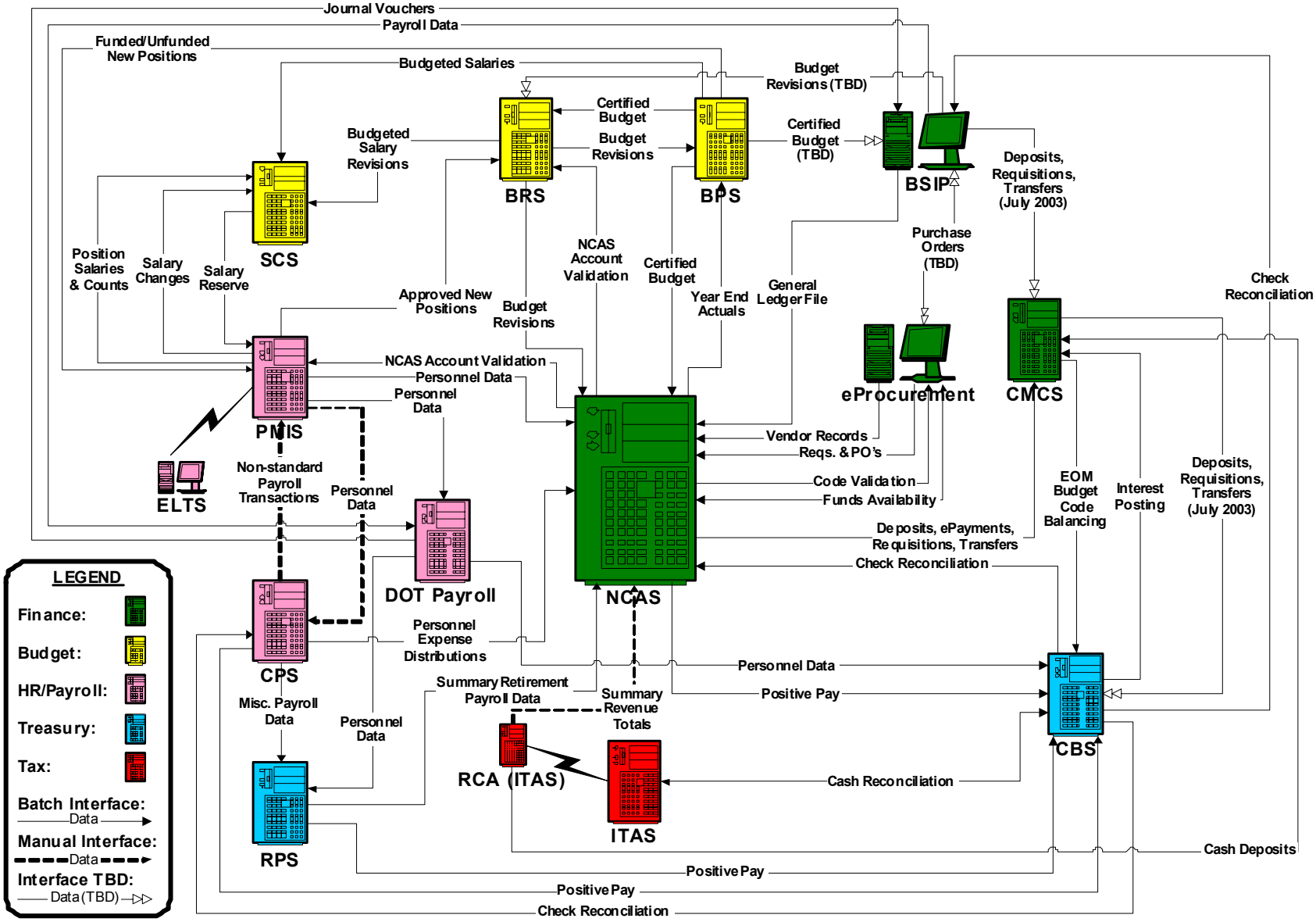
Financial Core System	Interface Direction	Other Core System	Inter-face Type	Data Description
Budget Preparation System – (BPS)	Send	NCAS	Batch	Certified Budget
	Receive	NCAS	Batch	Year End Actuals
	Send	DOT-BSIP	Batch	Certified Budget (TBD)
	Send	BRS	Batch	Certified Budget
	Send	PMIS	Batch	Funded/Unfunded New Positions
	Send	SCS	Batch	Budgeted Salaries
	Receive	BRS	Batch	Budget Revisions
Budget Revision System – (BRS)	Send	BPS	Batch	Budget Revisions
	Receive	BPS	Batch	Certified Budget
	Receive	NCAS	Batch	NCAS Account Validation
	Send	NCAS	Batch	Budget Revisions
	Receive	DOT-BSIP	Batch	Budget Revisions (TBD)
	Receive	PMIS	Batch	Approved New Positions
	Send	SCS	Batch	Budgeted Salary Revisions
Salary Control System – (SCS)	Receive	BRS	Batch	Budgeted Salary Revisions
	Receive	BPS	Batch	Budgeted Salaries
	Receive	PMIS	Batch	Position Salaries & Counts
	Receive	PMIS	Batch	Salary Changes
	Send	PMIS	Batch	Salary Reserve
North Carolina Accounting System – (NCAS)	Receive	BPS	Batch	Certified Budget
	Send	BPS	Batch	Year End Actuals
	Send	BRS	Batch	NCAS Account Validation
	Receive	BRS	Batch	Budget Revisions
	Receive	DOT-BSIP	Batch	General Ledger File
	Send	CBS	Batch	Positive Pay
	Receive	CBS	Batch	Check Reconciliation
	Send	CMCS	Batch	Deposits, ePayments, Requisitions, Transfers
	Receive	CPS	Batch	Personnel Expense Distributions
	Bi-Directional	e-Procurement	Batch	Funds Availability
	Receive	e-Procurement	Batch	Vendor Records
	Receive	e-Procurement	Batch	Requisitions & Purchase Orders
	Send	e-Procurement	Batch	Code Validation
	Receive	ITAS	Manual	Summary Revenue Totals (via RCA)
	Send	PMIS	Batch	NCAS Account Validation
	Receive	PMIS	Batch	Personnel Data
Cash Management Control System - (CMCS)	Send	CBS	Batch	Deposits, Requisitions, Transfers (July 2003)
	Receive	CBS	Batch	Interest Posting
	Send	CBS	Batch	EOM Budget Code Balancing
	Receive	ITAS	Manual	Cash Deposits (via RCA)
	Receive	NCAS	Batch	Deposits, ePayments, Requisitions, Transfers
	Receive	DOT-BSIP	Batch	Deposits, Requisitions, Transfers (July 2003)

Tax System	Interface Direction	Other Core System	Interface Type	Data Description
Integrated Tax Administration - ITAS	Send	NCAS	Manual	Summary Revenue Totals (via RCA)
	Send	CMCS	Manual	Cash Deposits (via RCA)
	Bi-Directional	CBS	Batch	Cash Reconciliation

Core Systems in Development	Interface Direction	Other Core System	Interface Type	Data Description
Business Systems Improvement Project – BSIP)	Send	CMCS	Batch	Deposits, Requisitions, Transfers (July 2003)
	Receive	CBS	Batch	Check Reconciliation
	Receive	BPS	Batch	Certified Budget (TBD)
	Send	BRS	Batch	Budget Revisions (TBD)
	Send	DOT Payroll	Batch	Payroll Data (July 2003)
	Receive	DOT Payroll	Batch	Journal Vouchers (July 2003)
	Send	NCAS	Batch	General Ledger File
	Bi-Directional	e-Procurement	Batch	Purchase Orders (TBD)
Core Banking System – (CBS)	Receive	CPS	Batch	Positive Pay
	Send	CPS	Batch	Check Reconciliation
	Bi-Directional	ITAS	Batch	Cash Reconciliation
	Receive	NCAS	Batch	Positive Pay
	Send	NCAS	Batch	Check Reconciliation
	Send	DOT-BSIP	Batch	Check Reconciliation
	Receive	CMCS	Batch	EOM Budget Code Balancing
	Send	CMCS	Batch	Interest Posting
	Receive	CMCS	Batch	Deposits, Requisitions, Transfers
e-Procurement	Bi-Directional	DOT-BSIP	Batch	Purchase Orders (TBD)
	Send	NCAS	Batch	Vendor Records
	Send	NCAS	Batch	Requisitions & Purchase Orders
	Receive	NCAS	Batch	Code Validation
	Bi-Directional	NCAS	Batch	Funds Availability
Current Retirement Payroll System – (RPS)	Receive	CPS	Batch	Misc. Payroll Data
	Send	CBS	Batch	Positive Pay Data
	Send	NCAS	Manual	Summary Retirement Payroll Information

The following diagram provides a visual illustration of the same information captured in the charts above. It illustrates the complications in keeping the systems data used by the core systems synchronized and that there is a significant amount of data stored in multiple places. The diagram does not illustrate the 166 interfaces from agency systems that also interface with the core business systems.

Current Core-Core System Interfaces as of April 2003



8.3 Best Practice System-Level/Technology Requirements

In addition to providing best practice requirements specific to processes and activities within a functional focus area, there are also best practice requirements that are likely to apply across functional areas and directly apply to an enterprise solution. These best practice requirements are requirements with enterprise system implications are designated as “system-level” and are often enabled by the enterprise technology solution. The system level requirements are summarized below and by definition, would apply broadly to all users of an enterprise system regardless of functional area. Gaps are not discussed in this section because North Carolina does not have an integrated/enterprise business infrastructure solution in place. Among the notable system-level requirement groupings are:

Alerts and Notifications

The system should provide configurable, on-line, rule-based alerts to pre-defined users when certain events occur, key deadlines approach, invalid data are entered, etc. System alerts, when used properly, allow both basic users and managers to receive real-time notification of issues that demand their attention, and thereby diminish the likelihood of missed deadlines or lack of key information. Examples of key system-generated alerts include notification to a contract manager of an impending contract renewal date; pending approvals on a system transaction that require immediate attention; aging of open invoice status; employee benefit election changes; address changes; employment application, and time sheet changes generated from an HR self-service application; and the availability or release of a new budget version.

Approvals

The system should provide user defined transaction approvals based on a single determinant or a combination of determinants, including but not limited to: transaction type, agency or organization, Dollar threshold, Creator-user status or level, Accounting distribution or classification, or any element of a transaction.

It should allow either sequential or concurrent approval processing by transactions, and the delegation of approvals for limited or unlimited time-periods (e.g., vacations). Transactions should allow individual users to approve at specific and multiple levels (e.g., a user with approval authority limited to the user’s level and below within the user’s organization), and to enter alternate or additional routing and approvals. The system should also automatically post transactions if approval is not required, according to the defined business rules.

Audit Trail

Because integrated systems, in many processes, empower decentralized end users with the facilities and tools to generate their own transactions, the presence of an easily accessible audit trail for managers becomes critical. The history of any system transaction should be available on-line for analysis by approved managers.

Reporting

A big challenge is being able to both access and critically analyze accurate data for use in managerial decision-making and strategic planning. Many organizations that have implemented ERP systems have found that the combination of increased data integrity and improved reporting/analytical abilities represents the most immediate positive impact of the system. Requirements around management reporting stress the importance of allowing users to customize their own reports by combining any number of data elements stored within the system, the creation of report extract files or downloads for analysis outside the ERP, the customization of reports to provide agency-specific or enterprise views on particular transactions, and the ability to schedule user-defined reports for production at regular intervals. Stated simply, the requirements provide for a

system that allows management reporting for any combination of standard data elements tracked within the system.

Security

The system-level security requirements are for the system to ensure that only pre-defined users have access to specified information and that controls are in place to both identify and track individuals that have attempted to breach the pre-defined security thresholds. The system should allow for the flexible establishment of central and agency security administration roles and responsibilities. It is also important that security be configurable at the organization level, to allow users within one organization to perform the same transaction as users from another, without having access to each other's data.

The security requirements also consider the enhanced customer service possibilities enabled by an ERP system. A single user logon should be available for access to all areas of the system. In other words, "single sign-on" must allow a state employee to interact with the HR self-service application and the accounts receivable system within the same authenticated session. In addition, the system should tie an individual user's system roles and privileges to his/her user ID, thereby ensuring that the user has access only to transactions and system functions for which he/she has been authorized by a system administrator. The system should also allow standard "user profiles" from which individual user IDs may inherit privileges.

Workflow and Approvals

Workflow-related business rules should be established on transaction type, dollar value, and commodity type. The system should automatically route transactions to appropriate authorizing users for approval, in sequence of approval required based on agency, account code, dollar value, and commodity.

Additionally, workflow should not become a transaction bottleneck and allow for auto-escalation of approvals after pre-defined time periods, integration between workflow and an approver's e-mail system, and delegation of approval authority in times of extended absence. The system should provide control and monitoring functionality for workflow, and a reporting or inquiry tool that can report on the status of the transaction moving through workflow.

Integration

While the ERP systems are capable of handling the majority of transactions entirely internally, there are many occasions in which other desktop processes or systems will continue to play a role in transactions. Therefore, enterprise solutions should allow the ability to attach electronic or scanned files/documents to any transaction, to export data to user-defined spreadsheet or analytical packages, to extract or download data to any standard non-ERP platforms (existing mainframes, various formats like Excel, Lotus, ASCII, word processor, ODBC-compliant databases, mainframe flat files, etc.), and to interface with standard imaging technology.

User Interface

The system should provide a common graphical user interface with the capability for individual users to customize their desktop. It should have the ability to establish and use quick codes, and allow transactions to be entered and edited on-line using pre-formatted screens in graphical user interfaces. The system requires full system functionality via Internet/intranet with the same functionality as the client desktop (e.g., agency budget requests may be performed at any PC with a web browser with the proper user security).

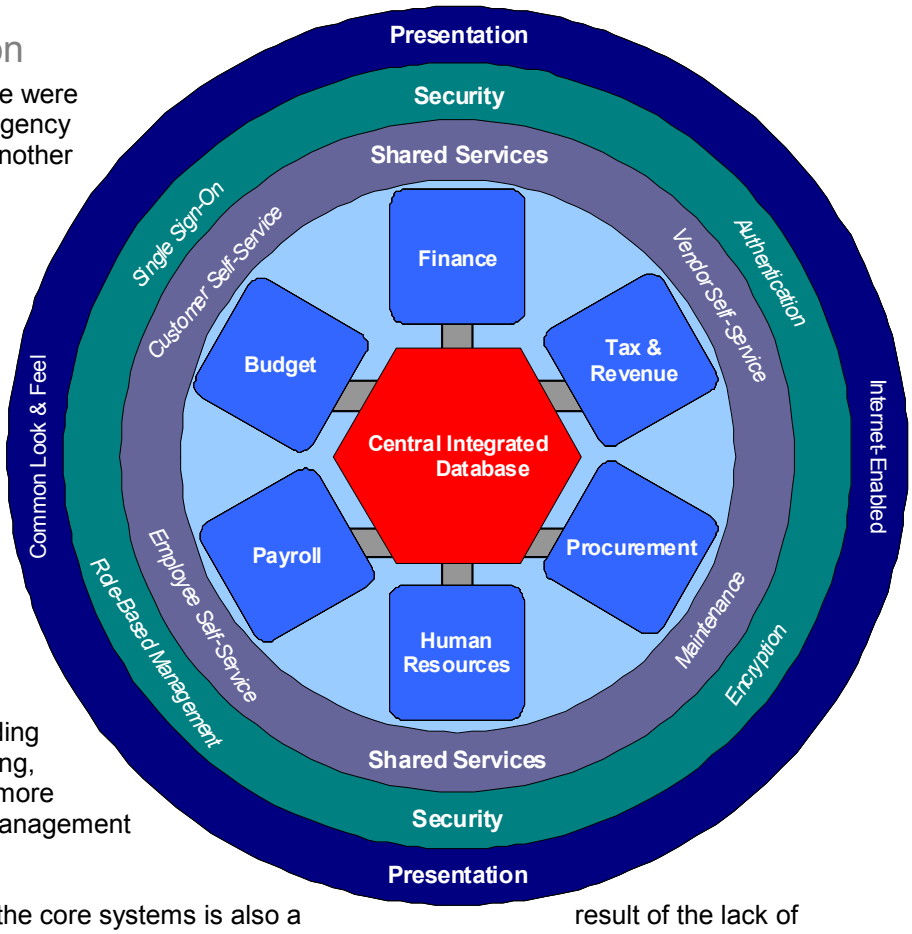
These system level requirement descriptions should be included in any type of enterprise wide solution that may be considered in support of North Carolina's business infrastructure.

8.4 Technology Issues and Risks

A result of the core and agency systems inventory is the identification of several issues related to the use of technology in the support of the core business infrastructure. Information from questionnaires, on-line surveys, meetings, and documentation provided the team provides an understanding of the system's technology architectures, interfaces, support needs, ongoing enhancements, and new implementation objectives. The following major issues were identified.

8.4.1 Lack of Integration

The core systems within the State were originally developed agency-by-agency but are very dependent on one another to provide the State with full functionality. The core interface diagram in Section 8.2 provides an illustration of the interfaces (data being transferred from one system to another) required for the core systems to operate today. Integrated systems (see diagram at right) would utilize a common data source or provide interoperability and data sharing that would act as a single source. This would greatly reduce the need for interfaces between the core systems as exists today. The concept of an integrated system with a "single source" of data provides other advantages including an increase in real-time processing, reduction in dual data entry and more effective and timely enterprise management reporting.



Duplicate entry of information in the core systems is also a result of the lack of system integration. In some instances workers keep two screens (sessions) active on their desktops and switch between the two sessions to re-key information. In other cases workers may use outputs from their agency systems to compile information and then re-key the information into another system. The duplicate entry and multiple storage of the same information increases the difficulty in accurately identifying and gathering data for centralized reporting, auditing and other similar functions.

Generally, integrated systems when configured properly provide more efficient and effective operations for the State.

8.4.2 Obsolesce

The core systems inventoried include ten systems that are not currently in the process of being replaced with more modern and fully functional systems. Of the 10 systems there are a variety of perceptions regarding their state of obsolesce because some have been kept up to date functionally and are in the process of web enabling functions (Budget Systems and PMIS) while others (CPS and CMCS) are at best being patched just to the point where they can stay operational. In general, many

of the core business functions are being performed by systems that are running on aged legacy technology. The core system profile chart in Section 6.2, Technology Architecture provides a summary profile of each core system identifying the age, development languages, platform, and other related information.

The older systems do not provide a user-friendly presentation for many of the HR, Finance, Budget and Tax systems. Use of a standard Graphical User Interface (GUI) would greatly simplify system usability and thus improve activities like the training of new employees and the use of cross functional users.

8.4.3 Technology Resource Constraints

To obtain and retain quality technology resources has been difficult for several agencies including the Office of State Budget Management, DOT, Office of State Personnel, and the Department of the Treasury. The ability to support older technologies and languages is a problem that is getting more severe due to the increase in retirement and the inability to find resources with the proper experience. Recent examples illustrating the problem include the need to reassign 6 people from the Office of State Budget Management data center to support the three 20 year old systems using COBOL/IMS technology. After six months 3 people remained and were providing only 1 FTE of assistance. A second example concerns DOT where the Payroll system is written in Assembler, an extremely old and difficult language to support. DOT has had to bring back past employees as contractors to support the ongoing system efforts.

Funding reductions have made the situation even more difficult. The recent budget crisis has added another layer of difficulty in managing resources. Vacant positions have been eliminated and lack of personnel raises has made it harder to keep and hire new personnel.

8.4.4 Lack of Enterprise Wide Coordination and Oversight

The State has identified the concept of an enterprise approach as a focus in its ongoing IT strategy and actions are being made by agencies to coordinate efforts and learn about other agency IT solutions. For example, the efforts underway for a new Core Banking and Retirement System included high-level inputs by the Office of the State Controller and other agencies. The Office of State Personnel is also currently investigating the use of a solution for web presence used by the Office of State Budget Management. These are notable actions by agencies to coordinate efforts and use similar technologies but do not constitute a sound enterprise approach. Some observations illustrating the lack of an enterprise approach include:

Projects in Process

Integration of the three newly initiated core business projects (Core Banking, Retirement System, and DOT-BSIP) have moved forward outside of an enterprise approach which will make it more difficult to include them in the ultimate solution. Use of an open architecture will make future integration easier, however, statewide standardization and understanding of integration needs and methods are essential to long-term enterprise planning. The more core systems that are developed independently, the more difficult the long-term enterprise solution will be to achieve.

Duplication of Functions

There is significant amount of duplicate functionality on different technical platforms. Islands of technology are being formed in agencies to support their specific needs. Also as pieces of core systems are being upgraded (PMIS, Budget) the solutions being used in the upgrades are not the same. Additionally, there were 71 agency specific systems identified in this study that provide a level of functionality that duplicates or augments core functionality.

Outsourcing Coordination

Outsourcing of hosting and business functions is becoming a normal practice today. Both the e-procurement and DOT-BSIP projects are using outsourcing vendors in their solutions however the coordination of activities with the outsourcing vendor is being done by the agency. Contract

monitoring and the use of standardized Service Level Agreements will help to maintain healthy relationships with the outsourcing vendor.

8.4.5 Centralized IT Funding and Support

ITS is a receipt supported organization that essentially bills agencies for the use of the State's central IT services. The organization has difficulty generating funds for research and development and other centralized initiatives. Because of this, agencies are taking on the role of licensing new technology solutions. They also are leery of trying new initiatives from ITS because they may be the only agency supporting the cost or if little interest develops, the initiative may be cancelled all together. These conditions all lead to instability in new initiative funding and execution.

8.4.6 North Carolina's Technology Issues

The State of North Carolina has identified technology related issues being faced by the State directly or indirectly in a series of recently released documents. Many of the issues pertain to the development and control of an enterprise focused state at a time when there are budget shortfalls and a need to improve state systems. In addition to the issues directly related to the study, the following documents provide a broader understanding of the complexity in implementing technology statewide and present additional technology issues facing the State that were outside the scope of this project:

- The Governor's Commission To Promote Government Efficiency and Saving on State Spending;
- The IT Efficiencies Subcommittee Report;
- The HR Efficiencies Subcommittee Report;
- The Statewide Information Technology (IT) Strategy;
- The North Carolina State Government Statewide Initiatives and Strategies 2003-2005 Biennium – State CIO's Recommended Approach for Managing Information Technology for a Better North Carolina; and
- The North Carolina State Government Statewide Initiatives and Strategies 2003-2005 Biennium – State CIO's Recommended Approach for Managing Information Technology for a Better North Carolina – Supplemental Material

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9 AGENCY SYSTEM INVENTORY

9.1 Inventory of Agency Systems

Identified during the study are non-core agency systems from 29 agencies that interact or duplicate core system functionality. Through an on-line survey instrument the agencies provided information on any non-core agency systems meeting one of the following criteria:

1. There is a *Manual Interface* between a Core Administrative System (i.e. data entry).
2. There is an *Automated Interface* between a Core Administrative System (i.e. Batch or Real-Time).
3. The system duplicates functionality found in a Core Administrative System.
4. The system provides HR or Financial functionality not found in a Core Administrative System (i.e. AR Billing)

The results of the survey identified 204 total systems meeting one or more of the criteria with 166 interfaces to core systems being captured. A summary count of the number of systems and interfaces by agency:

Agency Name	Agency Systems	Total Interfaces
Administrative Office of the Courts	7	4
Department of Administration	18	17
Department of Agriculture	16	3
Department of Commerce	3	1
Department of Correction	8	12
Department of Crime Control and Public Safety	5	7
Department of Cultural Resources	5	0
Department of Environment and Natural Resources	1	1
Department of Health and Human Services	56	40
Department of Insurance	2	1
Department of Justice	11	8
Department of Juvenile Justice and Delinquency Prevention	0	0
Department of Labor	3	3
Department of Public Instruction	13	10
Department of Revenue	8	5
Department of the Secretary of State	5	11
Department of the State Treasurer	11	16
Department of Transportation	1	3
Employment Security Commission	4	3
General Assembly	4	5
Information Technology Services	7	3
NC Community College System	1	3
NC Housing Finance	4	2
NC Wildlife Resources Commission	8	6
Office of Administrative Hearings	0	0
Office of State Budget and Management	0	0
Office of the Governor	0	0
Office of the Lt. Governor	0	0
Office of the State Controller	3	2
TOTALS	**204**	**166**

A complete list of the agency systems with short descriptions is provided in Appendix E, Agency Systems, and includes the identification of the agency systems with an interface to a core system, duplicate functionality, or providing HR or Financial functionality not found in a Core Administrative System. The OCS website at http://www.osc.state.nc.us contains a full listing of agency systems including a description of the interface data.

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10 APPENDIX

Appendix A – HR/Payroll Best Practice Requirements Gaps

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.1 Hire (PT, FT, Casual, Seasonal)	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.2 Rehire	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.3 Separations – Terminations	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.4 Separations – Retirement	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.5 Separations - Lay off	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.6 Leaves (Medical, Personal, FMLA)	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.7 Transfers	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.8 Secondments	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.9 Promotions	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.10 Demotions	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.11 Reclassifications	N	
1.0 Human Resources	1.1 Manage Personnel Actions	1.1.12 Exit Interviews	Y	Content and information is not captured in current systems. Currently the State is not able to report on statewide retention and attrition issues.

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.2 Competency based HR management:	1.2.1 Job Analysis	Y	The State does not have a statewide qualifications and competency catalogue which would allow for competency based HR management processes
1.0 Human Resources	1.2 Competency based HR management:	1.2.2 Performance Management	Y	The State does not have a statewide qualifications and competency catalogue which would allow for competency based HR management processes
1.0 Human Resources	1.2 Competency based HR management:	1.2.3 Succession Planning	Y	The State does not have a statewide qualifications and competency catalogue which would allow for competency based HR management processes
1.0 Human Resources	1.2 Competency based HR management:	1.2.4 Career Development	Y	The State does not have a statewide qualifications and competency catalogue which would allow for competency based HR management processes
1.0 Human Resources	1.2 Competency based HR management:	1.2.5 Skills' Assessment	Y	The State does not have a statewide qualifications and competency catalogue which would allow for competency based HR management processes
1.0 Human Resources	1.2 Competency based HR management:	1.2.6 Recruitment	Y	The State does not have a statewide qualifications and competency catalogue which would allow for competency based HR management processes

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.3 Employee Self Service	1.3.1 Demographic changes	Y	The State does not have full employee self service portals. There are a limited number of self service options for employees.
1.0 Human Resources	1.3 Employee Self Service	1.3.2 Benefit eligibility changes	Y	The State does not have full employee self service portals. There are a limited number of self service options for employees.
1.0 Human Resources	1.3 Employee Self Service	1.3.3 Address changes	Y	The State does not have full employee self service portals. There are a limited number of self service options for employees.
1.0 Human Resources	1.3 Employee Self Service	1.3.4 Employment verification	Y	The State does not have full employee self service portals. There are a limited number of self service options for employees.
1.0 Human Resources	1.3 Employee Self Service	1.3.5 Job applications	Y	The State does not have full employee self service portals. There are a limited number of self service options for employees.
1.0 Human Resources	1.3 Employee Self Service	1.3.6 Leave requests	Y	The State does not have full employee self service portals. There are a limited number of self service options for employees.
1.0 Human Resources	1.3 Employee Self Service	1.3.7 Training requests and scheduling	Y	The State does not have full employee self service portals. There are a limited number of self service options for employees.

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.3 Employee Self Service	1.3.8 Time entry	Partial	The State does not have a single employee time capture and evaluation system. There are also gaps in the State's ability to perform shift planning and scheduling as part of an integrated time management system.
1.0 Human Resources	1.3 Employee Self Service	1.3.9 Messaging to employees such as performance review dates	Y	Currently not offered.
1.0 Human Resources	1.4 Leave Tracking	1.4.1 Time balances	Partial	A non integrated stand alone application (Employee Leave Tracking) is being used by a limited number of Agencies.
1.0 Human Resources	1.4 Leave Tracking	1.4.2 Leave accruals	Partial	A non integrated stand alone application is being used by a limited number of Agencies.
1.0 Human Resources	1.4 Leave Tracking	1.4.3 Automatic updates from time entry system	Partial	A non integrated stand alone application is being used by a limited number of Agencies.
1.0 Human Resources	1.5 Workforce Analytics	1.5.1 Trend analysis	Partial	The current situation is difficult and limited due to the lack of an integrated database and an ad-hoc reporting tool.
1.0 Human Resources	1.5 Workforce Analytics	1.5.2 Manpower planning	Partial	The current situation is difficult and limited due to the lack of an integrated database and an ad-hoc reporting tool.
1.0 Human Resources	1.6 Employee Complaint Management	1.6.1 Employee Grievances and investigations	N	
1.0 Human Resources	1.6 Employee Complaint Management	1.6.2 Grievance dispositions and dates	N	

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.6 Employee Complaint Management	1.6.3 Discrimination complaints and investigations	N	
1.0 Human Resources	1.6 Employee Complaint Management	1.6.4 Discrimination complaint dispositions and dates	N	
1.0 Human Resources	1.6 Employee Complaint Management	1.6.5 Status of multiple appeals and dates	N	
1.0 Human Resources	1.7 Job and Salary Surveys	1.7.1 Job survey results	Y	Not currently maintained in a system.
1.0 Human Resources	1.7 Job and Salary Surveys	1.7.2 Job compensation comparison analysis	Y	Not currently maintained in a system.
1.0 Human Resources	1.7 Job and Salary Surveys	1.7.3 Benchmark jobs and positions	Y	Not currently maintained in a system.
1.0 Human Resources	1.7 Job and Salary Surveys	1.7.4 External salary survey data by classification	Y	Not currently maintained in a system.
1.0 Human Resources	1.8 Recruitment	1.8.1 Web based applications	Y	Agency by agency stand-alone.
1.0 Human Resources	1.8 Recruitment	1.8.2 Applicant tracking	Y	Agency by agency stand-alone. No sharing of applicant data.
1.0 Human Resources	1.8 Recruitment	1.8.3 Candidate to position competency/qualification matching	Y	Currently a manual process
1.0 Human Resources	1.9 Organizational Management	1.9.1 Organizational structure charting	Y	Organizational charts cannot be directly generated by PMIS
1.0 Human Resources	1.9 Organizational Management	1.9.2 Reporting relationships	Partial	PMIS holds data on "span of control" - describes the reporting hierarchy by position.
1.0 Human Resources	1.10 Job Analysis	1.10.1 Classification descriptions and evaluations	Partial	Current system has job descriptions, codes, requirements, and training
1.0 Human Resources	1.10 Job Analysis	1.10.2 Position Evaluations	Y	Current system does not allow for on-line position evaluation

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.11 Performance Management	1.11.1 Performance reviews	Partial	PMIS holds performance review codes and runs annual reports. Limited ability to maintain other performance related data
1.0 Human Resources	1.11 Performance Management	1.11.2 Career development	N	
1.0 Human Resources	1.12 Compensation Management	1.12.1 Salary administration	Partial	Current system is able to support standard salary range and step method of pay, but cannot support variable pay methods (e.g. performance based pay.)
1.0 Human Resources	1.12 Compensation Management	1.12.2 Variable pay	Partial	Current system does not allow for payments such as pay for performance
1.0 Human Resources	1.13 Succession Planning	1.13.1 Succession hierarchies	Y	Current system does not have capability to plot succession plans and competency requirements.
1.0 Human Resources	1.14 Budget Support	1.14.1 Personnel cost planning and projections	Y	Current system does not allow for personnel cost planning and the development of potential cost scenarios.
1.0 Human Resources	1.14 Budget Support	1.14.2 Funds based position management	Y	The current system does not provide an integrated budget to HR funds based position management tool that maintains data, by position, of funds spent, encumbered, and surplus.
1.0 Human Resources	1.15 Payroll Processing	1.15.1 Gross payroll (salary and earning calculations and eligibilities)	N	
1.0 Human Resources	1.15 Payroll Processing	1.15.2 Net payroll (deduction calculations and eligibilities)	N	
1.0 Human Resources	1.15 Payroll Processing	1.15.3 Payroll to General Ledger (posting and reconciliation)	N	

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.15 Payroll Processing	1.15.4 Year end and W-2 processing	N	
1.0 Human Resources	1.15 Payroll Processing	1.15.5 Direct deposits and 3rd party payments	Partial	Employees can only get direct deposit to one account.
1.0 Human Resources	1.15 Payroll Processing	1.15.6 Multiple payroll frequencies	Partial	No biweekly pay frequency in the Central Payroll System. This is one reason why there is a separate payroll system for DOT.
1.0 Human Resources	1.16 Time Management	1.16.1 Web based time capture	N	
1.0 Human Resources	1.16 Time Management	1.16.2 Time evaluation and integration to payroll	N	
1.0 Human Resources	1.16 Time Management	1.16.3 Labor cost distribution	Partial	Currently there are no statewide time capture systems that allow for the allocation of hours across multiple accounts.
1.0 Human Resources	1.16 Time Management	1.16.4 Resource scheduling	Y	No core system that allows for integrated shift planning and resource availability
1.0 Human Resources	1.16 Time Management	1.16.5 Shift Planning	Y	No core system that allows for integrated shift planning and resource availability
1.0 Human Resources	1.17 Benefits Administration	1.17.3 Eligibility checks	Y	Eligibility rules cannot be built into the current system
1.0 Human Resources	1.17 Benefits Administration	1.17.4 Benefit confirmation statements	Y	No current system that will generate a confirmation statement for employees who enroll or change benefits.
1.0 Human Resources	1.17 Benefits Administration	1.17.5 Vendor payment reconciliations	Partial	No integration between payroll and account payable and receivable
1.0 Human Resources	1.17 Benefits Administration	1.17.6 Monitoring of court ordered benefit payments	Y	Manual process

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.17 Benefits Administration	1.17.7 Beneficiary and dependent information	Partial	Not kept in State systems
1.0 Human Resources	1.18 Compliance	1.18.1 Drug testing monitoring	Y	No current capability to track drug test results by employee and position.
1.0 Human Resources	1.18 Compliance	1.18.2 Monitoring of pre-employment examinations for applicants	Y	Not tracked in current system
1.0 Human Resources	1.19 Incident, Accident Tracking	1.19.1 Occupational Health and Safety	Partial	The State has a third party vendor that is maintaining this data. Some data is interfaced into PMIS
1.0 Human Resources	1.19 Incident, Accident Tracking	1.19.2 Workman Compensation	Partial	The State has a third party vendor that is maintaining this data. Some data is interfaced into PMIS
1.0 Human Resources	1.19 Incident, Accident Tracking	1.19.4 Disability payment eligibility and monitoring	Partial	The State has a third party vendor that is maintaining this data. Some data is interfaced into PMIS
1.0 Human Resources	1.19 Incident, Accident Tracking	1.19.5 Accident investigation information	Partial	The State has a third party vendor that is maintaining this data. Some data is interfaced into PMIS
1.0 Human Resources	1.19 Incident, Accident Tracking	1.19.6 Rehabilitation assignments	Partial	The State has a third party vendor that is maintaining this data. Some data is interfaced into PMIS
1.0 Human Resources	1.20 Training	1.20.1 On-line course catalogues and status of employee applications	Y	No statewide system
1.0 Human Resources	1.20 Training	1.20.2 On-line Training schedules	Y	No statewide system
1.0 Human Resources	1.20 Training	1.20.3 Web based training requests and applications	Y	No statewide system
1.0 Human Resources	1.20 Training	1.20.4 Tracking of educational resources (rooms, equipment and trainers)	Y	No statewide system
1.0 Human Resources	1.20 Training	1.20.5 On-line course evaluations	Y	No statewide system

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
1.0 Human Resources	1.20 Training	1.20.6 Tracking and monitoring of costs	Y	No statewide system
1.0 Human Resources	1.20 Training	1.20.7 Monitoring of dates for expiration of critical employee qualifications requirements	Y	No statewide system
1.0 Human Resources	1.20 Training	1.20.8 Training needs assessments	Y	No statewide system

Appendix B – Budget and Finance Best Practice Requirements and Gaps

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.10 - Approve Vendor Payments	2.10.10 - Resolve Allocation Discrepancies	N	
2 - Finance	2.10 - Approve Vendor Payments	2.10.11 - Match Purchase Order to Goods Receipt Notice	N	
2 - Finance	2.10 - Approve Vendor Payments	2.10.12 - Run ERS Process	N	
2 - Finance	2.10 - Approve Vendor Payments	2.10.13 - Define Recurring Payment	N	
2 - Finance	2.10 - Approve Vendor Payments	2.10.14 - Execute Recurring Payment	N	
2 - Finance	2.10 - Approve Vendor Payments	2.10.3 - Generate Letter to Vendor	N	
2 - Finance	2.10 - Approve Vendor Payments	2.10.4 - Enter Straight Debit	N	
2 - Finance	2.10 - Approve Vendor Payments	2.10.5 - Route Invoice	Partial	NCAS provides some rudimentary workflow routing and approval capability, but does not integrate its workflow with a messaging system.
2 - Finance	2.10 - Approve Vendor Payments	2.10.7 - Enter invoice for match	N	
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.1 - Print Checks	N	
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.10 - Match Payment to Invoice	N	

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.11 - Process Checks and EFTs	N	
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.12 - Query Payment Status	Partial	NCAS provides the ability for staff to view vendor payment status but does not provide a vendor self-service view into vendor payment status
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.13 - Conduct Post Audit	N	
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.2 - Mail Checks	Y	Checks are printed remotely at agency printers and agency staff mail the checks. There is no integrated mailing feature in NCAS
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.6 - Update Outstanding Checks	N	
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.7 - Reconcile Treasury Cash Ledger Balance	N	
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.8 - Create EFT Payments	N	
	2.11 - Perform Payments and Reconciliations	2.11.9 - Perform Cash Availability Edit	N	
2 - Finance	2.11 - Perform Payments and Reconciliations	2.11.10 - Mail Remittance	N	
2 - Finance	2.12 - Perform Post Payment Processing	2.12.7 - Enter Stop Payment	N	

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.13 - Perform Grant Accounting	2.13.1 - Establish Grant	Y	NCAS does not provide a separate grant accounting module. Agencies can use agency definable fields in the chart of accounts to identify grants, but NCAS does not have the ability to perform funds checking against grant awards
2 - Finance	2.13 - Perform Grant Accounting	2.13.2 - Define Budget, Revenue, and Reporting Rules	Y	NCAS does not provide a separate grant accounting module. Agencies can use agency definable fields in the chart of accounts to identify grants, but NCAS does not have the ability to perform funds checking against grant awards
2 - Finance	2.13 - Perform Grant Accounting	2.13.3 - Record Grant Proceeds	Y	NCAS does not provide a separate grant accounting module. Agencies can use agency definable fields in the chart of accounts to identify grants, but NCAS does not have the ability to perform funds checking against grant awards
2 - Finance	2.13 - Perform Grant Accounting	2.13.4 - Record Encumbrances and Expenditures	Y	NCAS does not provide a separate grant accounting module. Agencies can use agency definable fields in the chart of accounts to identify grants, but NCAS does not have the ability to perform funds checking against grant awards
2 - Finance	2.13 - Perform Grant Accounting	2.13.5 - Allocate Indirect Costs	Y	NCAS has very limited allocation capabilities. Agencies perform their cost allocations outside of NCAS

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.13 - Perform Grant Accounting	2.13.6 - Prepare Grant Invoice	Y	NCAS does not provide a separate grant accounting module. Agencies can use agency definable fields in the chart of accounts to identify grants, but NCAS does not have the ability to perform funds checking against grant awards
2 - Finance	2.13 - Perform Grant Accounting	2.13.7 - Perform Grant Related Draw Down and Deposit	Y	NCAS does not provide a separate grant accounting module. Agencies can use agency definable fields in the chart of accounts to identify grants, but NCAS does not have the ability to perform funds checking against grant awards
2 - Finance	2.13 - Perform Grant Accounting	2.13.8 - Perform Grant Related Reporting	Y	NCAS does not provide a separate grant accounting module. Agencies can use agency definable fields in the chart of accounts to identify grants, but NCAS does not have the ability to perform funds checking against grant awards
2 - Finance	2.13 - Perform Grant Accounting	2.13.9 - Close Grant and Prepare Final Reports	Y	NCAS does not provide a separate grant accounting module. Agencies can use agency definable fields in the chart of accounts to identify grants, but NCAS does not have the ability to perform funds checking against grant awards
2 - Finance	2.14 - Administer State Grant or Loan	2.14.1 - Issue Grant Award	Y	NCAS does not have the ability to track state grants. Agencies that award grants track and report these grants from agency based systems

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.14 - Administer State Grant or Loan	2.14.10 - Define Payment Schedule	Y	NCAS does not have the ability to track state grants. Agencies that award grants track and report these grants from agency based systems
2 - Finance	2.14 - Administer State Grant or Loan	2.14.13 - Enter Results	Y	NCAS does not have the ability to track state grants. Agencies that award grants track and report these grants from agency based systems
2 - Finance	2.14 - Administer State Grant or Loan	2.14.15 - Prepare Executive Reports	Y	NCAS does not have the ability to track state grants. Agencies that award grants track and report these grants from agency based systems
2 - Finance	2.14 - Administer State Grant or Loan	2.14.5 - Review Application	Y	NCAS does not have the ability to track state grants. Agencies that award grants track and report these grants from agency based systems
2 - Finance	2.15 - Perform Revenue Accounting	2.15 - Perform Revenue Accounting	N	
2 - Finance	2.15 - Perform Revenue Accounting	2.15.10 - Submit Payment	N	
2 - Finance	2.15 - Perform Revenue Accounting	2.15.12 - Receive Payments	N	
2 - Finance	2.15 - Perform Revenue Accounting	2.15.14 - Record Deposit	N	
2 - Finance	2.15 - Perform Revenue Accounting	2.15.15 - Apply Payments	N	
2 - Finance	2.15 - Perform Revenue Accounting	2.15.17 - Record Customer Payment	N	

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.15 - Perform Revenue Accounting	2.15.2 - Register Customer (Agency)	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.15 - Perform Revenue Accounting	2.15.20 - Manage Customer Accounts	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.15 - Perform Revenue Accounting	2.15.4 - Order Goods and Services	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.15 - Perform Revenue Accounting	2.15.6 - Prepare Legacy Invoice (detail)	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.15 - Perform Revenue Accounting	2.15.8 - Deliver Invoice	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.15 - Perform Revenue Accounting	2.15.9 - Receive Invoice	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.16 - Perform Periodic Processing Requirements	2.16.1 - Calculate and Post Interest	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.16 - Perform Periodic Processing Requirements	2.16.3 - Create Dunning Notice	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.16 - Perform Periodic Processing Requirements	2.16.4 -Email Notice	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.16 - Perform Periodic Processing Requirements	2.16.6 - Perform Collections	Y	NCAS has very limited accounts receivable capabilities. Most agencies perform their customer, receivable, billing, and collection activities outside of NCAS
2 - Finance	2.16 - Perform Periodic Processing Requirements	2.16.7 - Stale Date Checks	N	
2 - Finance	2.17 - Process Accounting Transactions	2.17.11 - Enter Transaction Request	N	
2 - Finance	2.17 - Process Accounting Transactions	2.17.12 - Create Journal Voucher	N	
2 - Finance	2.17 - Process Accounting Transactions	2.17.4 - Conduct Legacy System Conversion	N	

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.17 - Process Accounting Transactions	2.17.5 - Post Interface Transaction	N	
2 - Finance	2.17 - Process Accounting Transactions	2.17.6 - Route for Approval	Partial	NCAS provides some rudimentary workflow routing and approval capability, but does not integrate its workflow with a messaging system.
2 - Finance	2.18 - Perform Allocations	2.18.1 - Identify Cost Pools	Y	NCAS has very limited allocation capabilities. Agencies perform their cost allocations outside of NCAS and the Statewide Cost Allocation Plan (SWCAP) is performed by an outside vendor
2 - Finance	2.18 - Perform Allocations	2.18.2 - Define Allocation Targets	Y	NCAS has very limited allocation capabilities. Agencies perform their cost allocations outside of NCAS and the Statewide Cost Allocation Plan (SWCAP) is performed by an outside vendor
2 - Finance	2.18 - Perform Allocations	2.18.3 - Define Allocation Rules	Y	NCAS has very limited allocation capabilities. Agencies perform their cost allocations outside of NCAS and the Statewide Cost Allocation Plan (SWCAP) is performed by an outside vendor
2 - Finance	2.18 - Perform Allocations	2.18.4 - Perform Allocations	Y	NCAS has very limited allocation capabilities. Agencies perform their cost allocations outside of NCAS and the Statewide Cost Allocation Plan (SWCAP) is performed by an outside vendor

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.18 - Perform Allocations	2.18.5 - Perform Periodic Audit	Y	NCAS has very limited allocation capabilities. Agencies perform their cost allocations outside of NCAS and the Statewide Cost Allocation Plan (SWCAP) is performed by an outside vendor
2 - Finance	2.18 - Perform Allocations	2.18.6 - Resolve Allocation Discrepancies	Y	NCAS has very limited allocation capabilities. Agencies perform their cost allocations outside of NCAS and the Statewide Cost Allocation Plan (SWCAP) is performed by an outside vendor
2 - Finance	2.19 - Perform Non-payroll Employee Payments Processing	2.19.6 - Enter Details	N	
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.11 - Process Year-end Adjustments	N	
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.13 - Carry Encumbrances Forward	N	
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.14 - Carry Budget Balance Forward	N	
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.16 - Close Year-end	N	
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.17 - Cancel Prior Year Budget Encumbrances	N	

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.2 - Close Sub-ledgers	N	
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.3 - Perform Reconciliation	N	
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.6 - Run Preliminary Reports	N	
2 - Finance	2.20 - Perform Month and Year-end Closing Requirements	2.20.9 - Close Period	N	
2 - Finance	2.21 - Perform Project Accounting	Establish Project Accounts	Partial	In addition to project accounting, NCAS also includes a project tracking module (PTS) which allows hierarchical definitions, project budgets and project closeout. The PTS is not used at this time. Agencies can use the agency definable fields in the chart of accounts to identify projects.
2 - Finance	2.21 - Perform Project Accounting	Reserve or Encumber Funds	Partial	In addition to project accounting, NCAS also includes a project tracking module (PTS) which allows hierarchical definitions, project budgets and project closeout. The PTS is not used at this time. Agencies can use the agency definable fields in the chart of accounts to identify projects.
2 - Finance	2.21 - Perform Project Accounting	Process Timesheets and Receive Direct Payroll Costs	Y	The ELTS and CPS do not have the ability to identify projects for direct payroll charges

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.21 - Perform Project Accounting	Receive and Apply Direct Costs	Partial	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Receive and Apply Miscellaneous Costs	Partial	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Apply Equipment Usage Costs	Y	There is no ability within the core systems to identify equipment usage and charge those costs to a project
2 - Finance	2.21 - Perform Project Accounting	Apply Project Interest Costs	Partial	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Unreserve Funds	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Apply Overhead Costs	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Finalize All Revenue/Expenditures	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Close Project	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.21 - Perform Project Accounting	Process Unassigned Costs/Revenues	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Settle Costs/Revenues to Cost/Revenue Object	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Settle Project Costs to an Asset Under Construction	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Settle Project Costs to a Final Asset	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.21 - Perform Project Accounting	Perform Project Reporting	Y	NCAS does not have a project accounting module. Agencies can use the agency definable fields in the chart of accounts to identify projects
2 - Finance	2.22 Asset Management	Maintain Asset Master Records	N	
2 - Finance	2.22 Asset Management	Acquire Assets	N	
2 - Finance	2.22 Asset Management	Manage Capital Leases	N	
2 - Finance	2.22 Asset Management	Manage Asset Retirement	N	
2 - Finance	2.22 Asset Management	Asset Transfers	N	

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
2 - Finance	2.22 Asset Management	Execute Asset Depreciation	Partial	NCAS has a Fixed Asset module that calculates depreciation. Historically NCAS has calculated depreciation for the enterprise funds. With the recent GASB 34 pronouncement, depreciation must be reported for all funds. Due to a limitation in NCAS, past years

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Appendix C – Procurement Best Practice Requirements and Gaps

Function	Process	Sub Process - Best Practice/Requirement	Y = Gap N = No Gap	Description of Gap
3 - Procurement	3.2 User Profile Management	3.2.1 Create User Profile	N	
3 - Procurement	3.2 User Profile Management	3.2.2 Update User Profile	N	
3 - Procurement	3.2 User Profile Management	3.2.3 Approve/Deny User Profile	N	
3 - Procurement	3.6 Catalog Management	3.6.1 Create/Build Catalog	Y	The State and Epylon did not have clearly defined roles and responsibilities for catalog (Contract Specialist) and supplier management (Epylon).
3 - Procurement	3.6 Catalog Management	3.6.2 - Locate Good or Service in Catalog	Y	It is very difficult for requesters to find the item in the catalog due to poor Cross Vendor catalogs searches for the same items; Not all vendors label (describe) their products in the same way making it difficult to find the one item you want. Perception is that even the buyers are having problems sourcing the requisitions to a catalog supplier due to the time it takes to find the right item in the catalog. Hence, there are many non-cataloged orders.

Function	Process	Sub Process - Best Practice/Requirement	Y = Gap N = No Gap	Description of Gap
3 - Procurement	3.6 Catalog Management	3.6.3 Maintain/Update Catalog Content	Y	Catalog data is maintained in multiple systems which requires duplication of resource effort to keep the systems in sync. End users perceive e-Procurement catalog data as being out of sync.
3 - Procurement	3.6 Catalog Management	3.6.4 Update and Log Catalog Transactions	N	
3 - Procurement	3.4 - Vendor Management	3.4.1 - Register Vendor	Y	The State does not have a single place (system) where vendors register. To do business with the State vendors must register in as many as 3 systems (e-Procurement, IPS, e-Quote).
3 - Procurement	3.4 - Vendor Management	3.4.2 - Accept New Vendors	N	
3 - Procurement	3.4 - Vendor Management	3.4.3 - Modify Existing Vendors	Y	The State does not have a process or controls around the vendor self registration process which becomes an issue when the vendor updates an existing vendor record i.e. some vendors unknowingly delete or corrupt existing vendor records.
3 - Procurement	3.4 - Vendor Management	3.4.4 - Pre-qualify Vendor	Y	
3 - Procurement	3.4 - Vendor Management	3.4.5 Certify Vendor	Y	HUB vendors are self certified in e-Procurement
3 - Procurement	3.4 - Vendor Management	3.4.6 - Update and Log Vendor Transactions	N	
3 - Procurement	3.4 - Vendor Management	3.4.7 - Manage Vendor Performance	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.

Function	Process	Sub Process - Best Practice/Requirement	Y = Gap N = No Gap	Description of Gap
3 - Procurement	3.4 - Vendor Management	3.4.8 - File Complaint if Necessary	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.3 - Purchase from State Sources and Contracts	3.3.1 Create single requisition for goods and services	Y	Goods and services must be on separate requisitions for NCA agencies
3 - Procurement	3.3 - Purchase from State Sources and Contracts	3.3.2 Create single requisition for multiple vendors	N	
3 - Procurement	3.3 - Purchase from State Sources and Contracts	3.3.3 Create requisition from existing requisition	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.3 - Purchase from State Sources and Contracts	3.3.4 Validate the Availability of Funds	N	Funds are checked via a real-time interface.
3 - Procurement	3.3 - Purchase from State Sources and Contracts	3.4.5 Calculate Sales and Use Tax	Y	Ship to locations are not validated in e-Procurement. Use tax is based on ship to location.
3 - Procurement	3.5 - Purchase with Payment Card	3.5.1 - Make Purchase with Payment Card via Requisition	Y	Purchase Cards are not in scope
3 - Procurement	3.5 - Purchase with Payment Card	3.5.2 - Log Transaction Data	Y	Purchase Cards are not in scope
3 - Procurement	3.5 - Purchase with Payment Card	3.5.3 - Match the Manual and Electronic Transaction Data	Y	Purchase Cards are not in scope
3 - Procurement	3.5 - Purchase with Payment Card	3.5.4 - Review Purchases	Y	Purchase Cards are not in scope
3 - Procurement	3.5 - Purchase with Payment Card	3.5.5 - Review Transactions and Approve Payment	Y	Purchase Cards are not in scope
3 - Procurement	3.5 - Purchase with Payment Card	3.5.6 - Hold Transaction	Y	Purchase Cards are not in scope

Function	Process	Sub Process - Best Practice/Requirement	Y = Gap N = No Gap	Description of Gap
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.1 Automated Approval Routing and Processing	Y	Approvals should be based on chain of command with common levels and dollar thresholds
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.2 Approve/Deny Requisition with Comments	Y	Comments are not allowed on the denied requisition. P&C must therefore, use another method to contact agencies to inform them of the reason for denial.
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.3 Edit Requisition during Approval Process	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.4 Cancel Requisition during Approval Process	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.5 Automated Denial Notification	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.6 Approve change order (if necessary)	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.7 Automated Overdue Approval Notifications	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.8 Approval Escalation	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.9 Delegation of Approval Authority	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.8 Obtain Approval and or Waivers	3.8.10 Self Approval	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.9 Transmit Purchase Order	3.9.1 Generated and Submit Purchase Order	N	

Function	Process	Sub Process - Best Practice/Requirement	Y = Gap N = No Gap	Description of Gap
3 - Procurement	3.9 Transmit Purchase Order	3.9.2 Commitment Created in Financials	N	
3 - Procurement	3.9 Transmit Purchase Order	3.9.3 Change Purchase Order	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.9 Transmit Purchase Order	3.9.4 Cancel Purchase Order	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.9 Transmit Purchase Order	3.9.5 Obtain Order Acknowledgement from Vendor	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.7 - Receipt and Inspection	3.7.1 - Review Open Orders and Inspect Materials	N	
3 - Procurement	3.7 - Receipt and Inspection	3.7.2 - Receive Material against Purchase Order (partial or full)	Y	Technically the State can not over or under receive due to the requirement to have the PO reflect what was purchased and received. The marketing fee is PO based (1.75% of PO is billed to the vendor) therefore the extended PO value must equal the extended receipt value.
3 - Procurement	3.7 - Receipt and Inspection	3.7.3 Perform multi-stage desktop and central receiving based on percentage, quantity or value	Y	See 3.7.2
3 - Procurement	3.7 - Receipt and Inspection	3.7.4 Auto-receive by commodity, part number or supplier	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed. All items require a physical receipt be performed within the system.
3 - Procurement	3.7 - Receipt and Inspection	3.7.5 - Return Material to Supplier	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.
3 - Procurement	3.7 - Receipt and Inspection	3.7.6 - Generate Credit Memo	N/A	Due to the limited scope of the e-procurement study, this requirement was not confirmed.

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
3 - Procurement	3.10 Asset Management	3.10.2 Create a fixed asset record or notification	Y	Asset Management was not within the scope of e-Procurement.
3 - Procurement	3.10 Asset Management	3.10.1 Notify asset manager of asset purchase, receipt, rejection and or return	Y	Asset Management was not within the scope of e-Procurement.
3 - Procurement	3.11 Reconciliation	3.11.1 System notifies users about invoice exceptions based on rules or manually	N	Based on the current design there are times when the buyer denoted in Ariba is different than those derived in NCAS
3 - Procurement	3.11 Reconciliation	3.11.2 Auto Pay and Evaluated Receipt Settlement	Y	The State is not leveraging auto pay, ERS or purchase card functionality.
3 - Procurement	Change Management	Training	Y	End users required additional training on the system
3 - Procurement	Strategic Based	Strategic Sourcing	Y	The State does not strategically source many of its commodities
3 - Procurement	Strategic Based	Control Maverick Spend	Y	There is off contract buying in play
3 - Procurement	Strategic Based	System Standards	Y	State Entities have different and multiple back end systems which will make integrating e-Procurement more challenging.

Appendix D – Tax Best Practice Requirements and Gaps

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
4 – Tax and Revenue Systems	4.1 Taxpayer Accounting	4.1.1. Create/Maintain Individual Taxpayer Account. Maintain all taxpayer registrations and IDs; multiple related physical and email addresses and phone/fax numbers; taxpayer changes like addresses, moves; ability to receive taxpayer info from external sources such as National Change of Address (NCOA); return mail tracking; Self-service capabilities; creation of taxpayer shells for easy entry	Y	Permits taxpayer account maintenance by DOR employees. Very little self-service or inquiry capability although online payment of individual taxes has recently been added
4 - Tax and Revenue Systems	4.1 Taxpayer Accounting	4.1.2 Register/Maintain Business Taxpayer. Maintain information on line and via interfaces with Employment Security Commission (ESC) and Secretary of State (SOS); track permits and licenses; taxpayer changes like addresses, moves, mergers etc.;	Y	Permits business taxpayer information maintenance by DOR employees. Integration with limited external systems; Limited self-service: file and pay sales tax. No account inquiry capabilities
4 - Tax and Revenue Systems	4.1 Taxpayer Accounting	4.1.3 Create/Maintain Taxpayer Associations. Doing business as (DBA) information. Agent and representative information; tax exempt status; taxpayer associations and relationships – parent/sub; partnerships	N	Generally supported.
4 - Tax and Revenue Systems	4.1 Taxpayer Accounting	4.1.4 Create and Maintain Tax Profile. Lien information; power of attorney; tax preparer etc.	N	Generally supported

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
4 - Tax and Revenue Systems	4.1 Taxpayer Accounting	4.1.5 Make Taxpayer Information available for inquiry and reporting. Consolidated taxpayer view by all tax types; taxpayers with common or overlapping ownership; other taxpayer information such as installment plans, audits, bankruptcy; interface with external systems such as DMV, IFTA, CVISN, Data Warehouse etc.	Y	No consolidated taxpayer view by tax types. Interfaces with external systems limited. No ad-hoc reporting or data warehouse capability.
4 - Tax and Revenue Systems	4.1 Taxpayer Accounting	4.1.6 General Features. Taxpayer self-service including authentication/authorization; capture all taxpayer communication and activities; support taxpayer education; management reporting	Y	Taxpayer communication and correspondence captured. Limited taxpayer self-service. No integrated taxpayer view of all tax types.
4 - Tax and Revenue Systems	4.2 Returns Processing	4.2.1 Ability to capture return Information from various sources, such as imaging, Federal returns, etc. Also, automatic selection (or flagging) of returns or accounts for review or hold from processing based on business rules e.g., high dollar value, tax due returns etc.	Y	Can receive federal return information for matching purposes. Recently implemented Imaging system is not integrated with ITAS, and needs to be viewed separately.
4 - Tax and Revenue Systems	4.2 Returns Processing	4.2.2 Validations and Exception Identification. Validate return line items across tax types or across tax documents (returns and attachments or schedules); validate returns against taxpayer ID and relationships, taxpayer profile information, external data such as ESC, IRS, etc.; payment and return validation; form-based business rules validation; exceptions processing; statistical data gathering on validation exceptions	Y	Generally supported. Limited exceptions processing. Also, limited interface and ad-hoc reporting capabilities

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
4 - Tax and Revenue Systems	4.2 Returns Processing	4.2.3 Non-Compliant Taxpayer Identification and Pursuit. Generate list to identify non-compliant taxpayers (e.g., registered but not filed for the tax type) or non-filers registered for a different tax type etc.; track collection steps and processes	Y	Limited support for collections, audit or identification or selection of non-filer/non-compliant taxpayers
4 - Tax and Revenue Systems	4.2 Returns Processing	4.2.4 Make return information available for reporting or inquiry. Support customer self-service and service by customer support; management and operational reporting; ad-hoc and custom search capability; federal return information; integration of tax system with imaging	Y	No self-service inquiry support. No consolidated taxpayer view by tax types. No ad-hoc reporting or data warehouse capability. Imaging system not integrated with ITAS
4 - Tax and Revenue Systems	4.2 Returns Processing	4.2.5 Posting and Adjusting of Returns. Processing by tax type rules; Processing of returns and all schedules; amended, duplicate and delinquent returns; automated updated of taxpayer information; automated recalculation of taxes based on amendments etc.; workflow capabilities for efficient exception processing; integration of taxpayer correspondence	Y	Generally supported. Limited Workflow capabilities
4 - Tax and Revenue Systems	4.2 Returns Processing	4.2.6 Return Information Capture. Return history capture; multiple dates (post, received, entered, amended); associating or tracking payments and returns; capture data from multiple input media such as internet, tele filing, EDI, bar coding etc. based on common edits; duplicate processing check	Y	Generally supported. No support for tele filing; internet filing not supported for individuals

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
4 - Tax and Revenue Systems	4.2 Returns Processing	4.2.7 Setup of New Forms, Edits and Rates. Multi-year processing support; maintain a set of information with minimal programming, e.g., multiple forms across years; tax rates by tax type and locality; period due dates etc.	Y	Generally supported through a Forms generation capability. Forms printing is batch driven; no local or remote printing or faxing capability
4 - Tax and Revenue Systems	4.3 Taxpayer Accounting	4.3.1 Post taxpayer Payments. Without returns; apply payments to payment, penalty or interest by choice; distinguish between different types of payments, e.g., prepayments, estimated, extension, audit collection case, installment payments etc.; split single payment across taxes; joint ID for payments etc.; support cashiering; maintain payment history by taxpayer;	N	Generally supported
4 - Tax and Revenue Systems	4.3 Taxpayer Accounting	4.3.2 Post Liabilities. Interest and penalty calculations; post audit or compliance-based liability; validation of extensions	N	Generally supported by ITAS
4 - Tax and Revenue Systems	4.3 Taxpayer Accounting	4.3.3 Compute & Handle Balances Apply payments to multiple taxpayers, e.g., joint taxpayers, innocent spouse, etc.; maintain balances and payment information by taxpayer and tax type; apply refunds to open liabilities; modeling of taxpayer liabilities; interest rate by tax types; special processing such as amnesty; online inquiry; billing capability	N	Generally supported by ITAS

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
4 - Tax and Revenue Systems	4.3 Taxpayer Accounting	4.3.4 Adjustments & Suspensions. Financial adjustments e.g., NSF checks, credit or debit memos, mispostings; assessment adjustment or abatement (e.g., due to protests); transfer payments between tax types or taxpayers; suspend penalties and interest based on appeal, bankruptcy, etc.; compromises or interest/penalty waivers;	N	Generally supported by ITAS
4 - Tax and Revenue Systems	4.3 Taxpayer Accounting	4.3.5 Distribution. Capture distribution information from bank deposits; report on all distribution information; revenue and cash distribution by taxing jurisdiction or agency;	N	Performed through RCA. Not integrated with ITAS.
4 - Tax and Revenue Systems	4.3 Taxpayer Accounting	4.3.6 General Taxpayer Features. Taxpayer self-service and inquiry capability; consolidated taxpayer view; review of taxpayer correspondence, bills etc.;	Y	No self-service capability
4 - Tax and Revenue Systems	4.4 Revenue Accounting	4.4.1 Financial & Statistical Reporting. Standard reports; reports for external constituents such as OSC; special reports for campaigns; ad-hoc reports	Y	Standard reports. Limited capability for ad-hoc or specialized reporting
4 - Tax and Revenue Systems	4.4 Revenue Accounting	4.4.2 Distribution Reporting.	N	Supported by ITAS
4 - Tax and Revenue Systems	4.4 Revenue Accounting	4.4.3 Ledgers & Journal Entries	Y	Supported by ITAS. Manual process for integration with NCAS
4 - Tax and Revenue Systems	4.4 Revenue Accounting	4.4.4 Reconciliation. Interface with Treasury for checks issued; NCAS for deposits and adjustments; taxpayer accounting to revenue accounting by tax type	Y	Supported by ITAS. Manual reconciliation process

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
4 - Tax and Revenue Systems	4.5 Case Management	4.5.1 Case Administration & Maintenance. Case inventory management; audit trails and alerts; integrated taxpayer correspondence generation; close, archive or reactivate cases; case workflow; detailed case reporting; external interfaces for outside collection or legal action; ad-hoc reporting; what if scenarios	N	Generally supported by ITAS. Limited ad-hoc reporting capability
4 - Tax and Revenue Systems	4.5 Case Management	4.5.2 Protest Tracking. Also, correspondence triggers.	N	Generally supported by ITAS
4 - Tax and Revenue Systems	4.5 Case Management	4.5.3 Collections - Administration and Maintenance. Liens and other legal action; collection tracking and administration; installment payment agreements (IPA); levies; seizures; taxpayer income etc. information to support collections	Y	Reports available form ITAS. Limited support for detailed collections administration and maintenance. In the process of making the IPA functionality work.
4 - Tax and Revenue Systems	4.5 Case Management	4.5.4 Audit. Audit selection based on management rules; fraud tracking	Y	Limited support for automated audit selection
4 - Tax and Revenue Systems	4.6 General Functions	4.6.1 Correspondence Management; Generate and log correspondence; electronic document management; managed returned mail/address changes	N	Generally supported.
4 - Tax and Revenue Systems	4.6 General Functions	4.6.2 Contact Management. Administration, update and tracking	Y	Mostly manual tracking of taxpayer contact information
4 - Tax and Revenue Systems	4.6 General Functions	4.6.3 Data Exchange. Ability to receive and output data to other systems	N	Extracts and input from other sources supported. Open, newer technologies such as XML not supported.

Function	Process	Sub Process - Best Practice/Requirement	Gap Y = Gap N = No Gap	Description of Gap
4 - Tax and Revenue Systems	4.6 General Functions	4.6.4 Electronic Document Management. Imaging as well as electronic filing data (tele filing; internet filing); emails; faxes; administration and security; linkage and integration	Y	Imaging provided through the Data Capture system, but not integrated with ITAS. Other electronic document capabilities not available.
4 - Tax and Revenue Systems	4.6 General Functions	4.6.5 Management Reporting - Queries and Ad Hoc reporting and inquiries as identified in the other requirements above	Y	Limited ad-hoc and custom reporting capability
4 - Tax and Revenue Systems	4.6 General Functions	4.6.6 Application Security - General Security	N	Standard mainframe security features available in ITAS. Some requirements like sensitive taxpayer related security not available.
4 - Tax and Revenue Systems	4.6 General Functions	4.6.7 Workflow; Administration and Setup; Routing, Alerts, and Tickler Capabilities; Process Monitoring and Reporting; Data and Reporting Focus	Y	Sophisticated workflow features such as routing, alerts etc. not available in ITAS.
4 - Tax and Revenue Systems	4.7 Technology	4.7.1 Application Architecture. Graphical User interfaces and browser-based system access; relational database; support for open architecture such as XML; TCP/IP; configurable/table driven architecture that allows for effecting routine and regular changes with minimal programming;	Y	ITAS is based on mainframe technology with mainly terminal emulation access. Recent additions allow for online payment and/or filing of taxes by taxpayers, but DOR users have "green screen" access to the system
4 - Tax and Revenue Systems	4.7 Technology	4.7.2 External Application Integration. integration with email; imaging; integration with CTI and predictive autodialer; internet self-service	Y	CTI integration may be supported with the CRM implementation planned for later this year. ITAS does not support the other external integration requirements
4 - Tax and Revenue Systems	4.7 Technology	4.7.3 Operational. Minimal batch window and system downtime for nightly processing	Y	Not Supported

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Appendix E – Agency Systems

Below is a list of agency secondary systems as provided by the agencies meeting one or more of the following criteria:

1. Interfaces to core systems;
2. Duplicate core system functionality; or
3. Provides HR/Financial functionality not found in a core administrative system.

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Office of the State Controller	OSC - Daily Receipts Register	Daily Receipts Register of all checks received by OSC. From this system our deposit information is prepared. From this system we print a Receipt register of all checks, cash, etc received for that day. A journal entry sheet is prepared to enter into NCAS. The system will also print a receipt if required.	No	No	Yes
Office of the State Controller	OSC - Invoice Billing System	Invoice/Billing System used to prepare invoices for miscellaneous billings. This includes, Flexible Benefits program, Training Cancellation Fees, Agency Reimbursements. etc.	No	No	Yes
Office of the State Controller	OSC - Accounts Receivable System	Accounts Receivable System to keep up with Flexible Benefits accounts receivable. We post checks received and electronic transfer from CMS to this Excel spreadsheet. Prints monthly activity and on an as needed basis statement on accounts that are past due.	Yes	Yes	No
Department of Revenue	Java Enabled Tax System (JETS)	Processes several smaller taxes that were not cost effective to incorporate into ITAS, such as Tobacco, Other Tobacco Products, Beer/Wine, Gift/Inheritance, etc. Tracks returns, assessments, accounts receivables, etc.	Yes	No	Yes
Department of Revenue	Unauthorized Substance (USUB)	Tracks assessments for Unauthorized Substance taxes, notices, collections, accounts receivables, etc.	Yes	No	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Revenue	Data Capture	Image tax returns and process checks. Data from the images is extracted for input to ITAS and the financial information is accumulated for input to RCA (Revenue Collection and Analysis system).	No	Yes	No
Department of Revenue	Electronic Funds Transfer (EFT)	Receipt of electronic payments from taxpayers	No	Yes	No
Department of Revenue	Electronic Filing (Individual Income) ELF	Receipt and processing of individual income tax returns (D400) from Fed/State program (via IRS). Stores and formats return for input to ITAS.	No	Yes	No
Department of Revenue	Revenue Collection Analysis System	Accumulates, tracks and reports on tax receipts by tax type and budget code	No	Yes	No
Department of Revenue	On-line Filing and Payments (OFP)	Processes tax returns filed on-line and through ELF, including payments, for input into ITAS	No	Yes	No
Department of Revenue	Vehicle Information System for Tax Apportionment	Processes the quarterly fuel carrier tax returns.	Yes	No	No
Department of Health and Human Services	[Controller] - DHHS Cost Allocation System	Allocates expenses across agency for Federal reimbursements	No	Yes	No
Department of Health and Human Services	[Controller] - Domiciliary Care Rate Set (Subsidy Child Care)	Adult Care Cost Finding Reporting Used for rate setting	No	No	Yes
Department of Health and Human Services	[Controller] - Electronic Funds Transfer (EFT) System	Generates entries for ACH payments and drafts	No	No	Yes
Department of Health and Human Services	[Controller] - Food Stamp (Federal Grants Reporting)	Tracks Food Stamp Federal Grant dollars from City Admin system	No	Yes	No
Department of Health and Human Services	[Controller] - HIPAA Financial Tracking and Costing System	Apportions, tracks and reports HIPAA costs for resources	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Health and Human Services	[Controller] - IPJC - IT Project Job Costing	Implemented to meet requirements of Senate bill 222	No	Yes	No
Department of Health and Human Services	[Controller] - Reimbursement for County Welfare Administrative Expenditures	Reimbursement for County Welfare Administrative Expenditures - includes all cost reported via the DSS-1571	No	Yes	No
Department of Health and Human Services	[Controller] - Student Billing System	Track Student Fees A/R system	No	No	Yes
Department of Health and Human Services	[Controller] - Transaction Billing System	Produces SIPS transaction specific data for DHHS on-line applications for controller's office.	No	Yes	No
Department of Health and Human Services	[DCD] - Day Care Reimbursement (Subsidy Child Care)	SCC Reimbursement System is on-line that provides inquiry, add, update to current, new, prior month data, inquiry access to Approval Notice files(pc), provider files, child payment files. Formulas for payment calculation to child detail level as well as f	No	Yes	No
Department of Health and Human Services	[DCD] - Contract System	This system provides for tracking contracts through various screens which depicts dates, amendments, amounts, distributions etc.	No	No	Yes
Department of Health and Human Services	[DCD] - Criminal Background Check	System is a subset of the regulatory system and tracks employee background data. Employee must complete background check app that is scanned into FoxPro database. Finger print info. is sent to the SBI for investigation and returned to DCD with the results	No	No	Yes
Department of Health and Human Services	[DFS] - DFS Contract/Supply Inventory System	Tracks contracts and supplies. Reallocates expenses across DHHS. Keeps up with and accounts for supplies inventories costs	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Health and Human Services	[DIRM] - ABT Niku system	Project Management and Time Reporting Systems	No	No	Yes
Department of Health and Human Services	[DMA] - Medicaid Accounting System	Determines and allocated funds between state/federal responsibilities	No	Yes	No
Department of Health and Human Services	[DMA] - Wang/Levy Case Tracking	Track, process, and adjudicate claims for disability under Title II and XVI of the SSA and certain DMA claims.	No	Yes	No
Department of Health and Human Services	[DMH] - ATS Personnel Dept.	Tracks future employees to be hired - Dorothea Dix Hospital only	Yes	No	No
Department of Health and Human Services	[DMH] - Cost Accounting/inventory	Tracking Clients and Services	No	Yes	No
Department of Health and Human Services	[DMH] - HEARTS - Healthcare Enterprise Accounts Receivable Tracking System	AR Billing	No	Yes	No
Department of Health and Human Services	[DMH] - IPRS - Integrated Payments and Reporting System	Establishes eligibility and processes payments for DMH programs	No	Yes	No
Department of Health and Human Services	[DMH] - PAYMAIN	Calculate client payroll and maintain client payment history - Murdoch Center only	No	Yes	No
Department of Health and Human Services	[DMH] - Purchase Order System	Prepares purchase orders for food department - Dorothea Dix Hospital only. They have an unnamed (X) program that is used in the food department which is self contained within the institution.	Yes	No	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Health and Human Services	[DMH] - Staff Development and Training System	Individual training records for staff and instructors - Western Carolina Center only. Self contained within the institution - reports are run and sent to Barb Kunz in the Raleigh Central Administration HR office. Other institutions use this program but they do not interface with each other.	Yes	No	No
Department of Health and Human Services	[DMH] - Staff Development System	Database of employee training and education schedule. Tracks employee training. This is an old DOS program circa 1983 that is used as a historical database and is self contained within the institution. They do update name changes etc. and use the data to add to the newer Staff Development & Training System	Yes	No	No
Department of Health and Human Services	[DMH] - Staff Tracking	Employees, work locations, other work-related information - Western Carolina Center	Yes	No	No
Department of Health and Human Services	[DMH] - STAFMAIN	Staff name lookup - Murdoch Center only. Program set up with staff name; EOD and/or separation dates used verify employment, etc. which is self contained within the institution.	Yes	No	No
Department of Health and Human Services	[DMH] - STDMAIN	Track staff training history - Murdoch Center	Yes	No	No
Department of Health and Human Services	[DMH] - Unscheduled Leave	Tracks unscheduled leave (absenteeism) - Western Carolina Center only	Yes	No	No
Department of Health and Human Services	[DMH] - Yearly Time Totals	Excel worksheets for each member of Staff Development to record vacation, sick leave - Western Carolina Center only	Yes	No	No
Department of Health and Human Services	[DPH] - Women Infant & Children	Welfare provides food to qualifying individuals.	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Health and Human Services	[DPH] - Purchase of Medical Care Services	System authorizes and pays claims for Health program recipients. Participating programs are CSHS, HIV, Cancer, Sickle Cell, Kidney, and Migrant Health.	No	Yes	No
Department of Health and Human Services	[DSB] - County Billing	Creates quarterly bills for Counties and updates County address and budget information	No	Yes	No
Department of Health and Human Services	[DSB] - Electronic Service System	Financial reimbursement for service and equipment providers to clients. Also provides client tracking and status.	No	Yes	No
Department of Health and Human Services	[DSB] - SAB Accounting	Facilitates check writes for SAB clients. The payment data is reported by SAB Reporting to the federal government.	No	Yes	No
Department of Health and Human Services	[DSS] - County Administration	Issues reimbursement to the local DSS; provides for admin services cost and tracks county expenditures for all programs; Tracks county, state, federal dollars to allocations.	No	Yes	No
Department of Health and Human Services	[DSS] - AppTrack System	Tracks Applicants for DSS positions. Tracks new applicant information.	Yes	No	No
Department of Health and Human Services	[DSS] - Automated Collection & Tracking System (ACTS)	Provides a full range of Child Support Enforcement, Collection and Disbursement Services with a case load of approximately 625,000 cases	No	No	Yes
Department of Health and Human Services	[DSS] - County Spending	Tracks federal, state, and local spending by county for all programs reimbursed through DSS	No	Yes	No
Department of Health and Human Services	[DSS] - EPICS - Enterprise Program Integrity Control System	Fraud & overpayment tracking system. Sends info to Federal and/or State governments for tax interception.	No	Yes	No
Department of Health and Human Services	[DSS] - Food Stamp Info. System (FSIS)	Provides statewide automation support for Food Stamps, Auto-Food Stamps, commodities, and claims. Includes federal reports.	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Health and Human Services	[DSS] - Leave System	Tracks leave balances for DSS Staff	Yes	No	No
Department of Health and Human Services	[DSS] - Social Worker/Case Manager Time Recording System	Used by county DSS social workers/case managers to document 100% of work time for accurate federal/state/county reimbursement	Yes	No	No
Department of Health and Human Services	[DSS] - Child Placement Payment System	Tracks children in county DSS custody; reimburses counties, child caring institutions and other state agencies for foster care maintenance costs; pays adoption assistance to adoptive parents and perform accounting procedures. Interfaces with Foster Home.	No	Yes	No
Department of Health and Human Services	[DSS] - BEER (Social Security Match)	Allows county workers to inquire on wages reported by SSA	No	No	Yes
Department of Health and Human Services	[DSS] - Employment Security Commission Match	Allows workers to see in state wages on-line	No	No	Yes
Department of Health and Human Services	[DSS] - IEVS/IRS	Allows workers to see IRS 1099 via batch	No	No	Yes
Department of Health and Human Services	[DSS] - Eligibility Information System (EIS)	Tracks and reports benefit payments for TNF, SAA, SAD, SCD, and RRS.	No	Yes	No
Department of Health and Human Services	[DVR] - Case Management System	Case management	No	Yes	No
Department of Health and Human Services	[DVR] - Client/Vendor Authorization Systems	Provides tracking of Clients, Services and Payments	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Health and Human Services	[DVR] - Community Rehabilitation Programs(CRP)	Track clients and services provided by Community Rehabilitation Programs and create management reports. Produces annual budgets for CRPs which determines number of slots and amount VR will sponsor for services.	No	Yes	No
Department of Health and Human Services	[DVR] - Financial Systems	Provides tracking of Clients, Services and Payments	No	Yes	No
Department of Health and Human Services	[DVR] - Social Security Reimbursements	Recoup money from SSA for rehabilitating VR clients and getting them back into successful employment. SSA reimburses VR for some of costs associated with rehabilitation.	No	Yes	No
Department of Health and Human Services	[Office of Secretary] - Application Tracking System	Tracks applicants for DHHS for recruitment and hiring under the merit based recruitment process.	No	No	Yes
Department of Health and Human Services	[Office of Secretary] - DHHS Contracts System	Database for all contracts entered into by DHHS.	No	Yes	No
NC Wildlife Resources Commission	FAMRS (Federal Aid and Management Reporting System)	The primary purpose of the system is to capture data in order to allocate expenditures to Federal grants. Reports are generated to provide documentation for Federal draws. Program personnel also use the system for various management reporting purposes.	No	Yes	No
Department of Environment and Natural Resources	Forestry Development System	This system tracks landowner contracts for the Forestry Division. Detailed information for each contract is held in this system. Generates invoices.	No	Yes	No
Administrative Office of the Courts	Time and Leave System	Provides a record of hours worked, leave earned, and leave taken. Provides activity codes for time worked.	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Administrative Office of the Courts	Financial Information Control System	Does split pay outs to the proper funding of projects based on the rate of participation. It also tracks interest and principal collected for the funds.	No	Yes	No
Department of Commerce	Automated Time and Leave Accounting System	Keeps track of employee time and tracks various leaves such as sick, vacation, holiday, FMLA, adverse weather and other leave types.	No	Yes	No
Department of Commerce	Position Control System	Tracks job applicants and their status.	No	Yes	No
Department of Cultural Resources	Leave	Leave managers enter monthly summary data of employee leave taken for individuals. System keeps up with leave earnings using the Employee system and does the math and produces summary reports at the end of the calendar year.	Yes	No	No
Department of Cultural Resources	Spreadsheet Leave	Individual daily leave entry and monthly calculation.	Yes	No	No
Department of Cultural Resources	Budget	Tracking of spending by line item within cost center.	Yes	No	No
Department of Cultural Resources	Quicken/Quick Books	Tracking of spending of public and private funds by line item within cost center.	Yes	No	No
Department of Cultural Resources	Employee	Employee information.	Yes	No	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of the Secretary of State	Secretary of State KnowledgeBase (SoSKB)	Provides the department with an on-line, Web-enabled, integrated system of applications and databases that provides the following functionality: document and check imaging, document tracking, document generation, cash management, employee workload balancing and reporting using common work queues, electronic workflow using scanned documents, reporting, Web publishing, e-government services, and ACH, electronic check, and credit card payment options.	No	Yes	No
Department of Crime Control and Public Safety	State Active Duty System	State Active Duty System processes National Guard pay records and feeds information to state payroll and accounts payable	No	Yes	No
Department of Crime Control and Public Safety	Emergency Management Grant Management System	Tracks grant awards for Emergency Management grants to vendors across the State. Creates a file of check amounts and vendor numbers to be keyed into NCAS AP	No	Yes	No
Department of Crime Control and Public Safety	Governors Crime Commission Grants Management System	Tracks grant awards made by the Governors Crime Commission. Creates a file of check amounts to be keyed into NCAS.	No	Yes	No
Department of Crime Control and Public Safety	Crime Victims System	The crime victim system processes applications by claimants on behalf of victims for reimbursement of out of pocket expenses form the crime victims compensation fund.	No	Yes	No
Department of Crime Control and Public Safety	Computer aided dispatch	Dispatch troopers to calls for service, automatic scheduling system with personnel functions, citations, accidents, trooper tracking functions, etc.	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of the Secretary of State	Notary Information System	Provides the Notary Division with a method to record and maintain individuals commissioned by the Secretary of State to serve as Notary Publics in North Carolina. The Notary Information Management System handles initial appointments, re-appointments, and changes and produces Certificates.	No	Yes	No
Administrative Office of the Courts	Charitable Solicitations Licensing System	Provides the Charitable Solicitations Section with a method to record and maintain license information for individuals and organizations that are licensed in NC by the Secretary of State to solicit contributions from citizens for non-profits. The system handles initial licenses, renewals, and annual reports and produces licenses and reports.	No	Yes	No
Department of the Secretary of State	Trademarks Information System	Provides the Secretary of State with a method to record and maintain registered trademarks and service marks. The Trademark System builds indexes by mark name, registrant name, class, and expiration date. Images of registered trademarks and service marks are stored in the SoSKB.	No	Yes	No
Department of the Secretary of State	Lobbyists Registration Information System	Provides a central information source of registered lobbyists and principal agents. The information in this system includes lobbyist names and addresses, principal names and addresses, and names and addresses of the officers of the principals.	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of the Secretary of State	Securities and Investment Advisers Info. System	The Investment Adviser Subsystem provides a method to process registration of investment advisers (firms) and investment adviser representatives (employees). The Investment Advisor Subsystem provides a method to record the applications as received, track the review process of applications, print certificates and letters, and renew applications. Offerings Tracking Subsystem provides a method to examine the offerings, including public, private, and mutual funds. Multiple types of offerings may be sold under one offering name. Offerings are categorized as either "shelf" or "non-shelf" filings. A "shelf" filling is good for 12 months and may be renewed. A "non-shelf" filing is good until the transaction is complete and has no renewal process. Files are downloaded into ACCESS for reporting.	No	Yes	No
Department of Commerce	QuickBooks	Used for A/R billing for Executive Aircraft Division	No	No	Yes
NC Wildlife Resources Commission	Leave Records	Tracks individual employee leave balances (vacation, sick, military, community services, bonus, etc).	No	No	Yes
NC Wildlife Resources Commission	Employee Training	Tracking of all WRC employee training classes taken which includes information required by the Academic Assistance Program.	Yes	No	No
NC Wildlife Resources Commission	Personnel Application Program	Tracking of applications received by agency for permanent & time limited positions which are advertised. Information used for EEO tracking.	No	No	Yes
Administrative Office of the Courts	Financial Management System	Financial Management System (FMS) is used by the clerk of superior court offices throughout the State. FMS along with the Mainframe Cash Receipting System (MFCR) are used to account for all funds collected and disbursed by the clerk's offices.	Yes	No	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Administrative Office of the Courts	Advance Sheets and Volumes	Accounts Receivable/tracking system for Advance Sheets and Volumes	No	No	Yes
Administrative Office of the Courts	Remote Access Accounts Receivable	Remote Public Access and Remote Government Access accounts receivable system maintains billing and payment information for this service	No	No	Yes
Department of Labor	Boiler Inventory	Billing and collecting of boiler inspection fees.	No	Yes	No
Administrative Office of the Courts	Leave Tracking System	Leave Tracking System is used to maintain all leave taken, earned and record balances for all permanent employees within the agency. It is part of the FMS system	Yes	No	No
Department of Labor	Elevator Inventory	Billing and collecting of elevator inspection fees.	No	Yes	No
General Assembly	Members Allowance Reporting System (MARS)	Accounts for the General Assembly Members' Office Allowance of long-distance phone calls, use of State Telephone Network Credit Cards, Faxes sent, mail postage, stationery, envelopes and business cards.	No	Yes	No
General Assembly	Peachtree Complete Accounting	Accounts for the Office and Janitorial supply inventories of the General Assembly	No	Yes	No
General Assembly	Cafeteria Food Inventory Application	Accounts for the food and supply inventory of the Cafeteria and Snack Bars of the General Assembly	No	Yes	No
General Assembly	SmartStream	Accounts for and processes the personnel, benefits and payroll functions of the General Assembly	Yes	Yes	No
Department of Labor	OSHA Publications	Keeping inventory and collecting payments for the sale of printed OSHA publications.	No	Yes	No
NC Wildlife Resources Commission	CSS	Statewide Hunting & Fishing licensing point of sale system.	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
NC Wildlife Resources Commission	Vessel	Statewide vessel registration & titling system point of sale system.	No	Yes	No
NC Wildlife Resources Commission	Magazine	Tracks Wildlife in NC magazine subscriptions for 1 yr, 3 yr, and lifetime subscribers. Information includes personal and financial data.	No	Yes	No
NC Wildlife Resources Commission	Wild Store	Internet based merchandise storefront to sell NC Wildlife apparel, educational supplies, calendars, etc.	No	Yes	No
Department of Health and Human Services	DHHS	Businessworks Accounts Receivable & Billing AR and Billing for Child Support bad checks AR and Billing for student fees AR and Billing for various program overpayments AR and billing for various sub recipient audit disallowances. AR and Billing for Dorothea Dix Child Care AR and billing of Vocational Rehabilitation overpayments AR and Billing for Miscellaneous Receivables	Yes	Yes	No
Department of Administration	Mail Service Center Invoicing and AR System	Captures data from the postage machines. The system then invoices agencies or posts transactions to the Cash Management System.	No	Yes	No
Department of Administration	Federal Surplus Property Invoicing and AR System	Invoices agencies and non-profits for goods sold by Federal Surplus. Produces invoices. Includes an accounts receivable system with statements, aging and history reports.	Yes	Yes	No
Department of Administration	Temporary Solutions AR System	Is an accounts receivable system with statements, aging and history reports.	Yes	Yes	No
Department of Administration	Courier Invoicing and AR System	Invoices state and local government agencies for mail sent through the Courier Mail Service. Produces invoices. Includes an accounts receivable system with statements, aging and history reports.	Yes	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Administration	Leave System	Leave is entered from monthly time sheets by a central person in each agency. The system then calculates the leave balances for annual, sick, etc. The central person prints out a copy for each individual.	Yes	No	No
Department of Health and Human Services	HEARTS	HEARTS is the core patient management system for the State's four psychiatric hospitals, four mental retardation centers, NCSCC and two ADATCS for Patient Admissions, Utilization Review, Medical Records, Patient Census and Tracking, Accounts Receivable, Insurance Billing, Patient Statements, Patient Accounting, Debt Setoff and Patient Personal Funds Accounting.	Yes	Yes	No
Department of Administration	APT Invoicing and AR System	Invoices agencies for telecommunications projects done by Agency for Public Telecommunications. Produces invoices. Includes an accounts receivable system with statements, aging and history reports.	Yes	No	No
Department of Administration	VA Scholarship Program	Tracks veteran scholarship payments to public and private universities and community colleges.	No	Yes	No
Department of Administration	Motor Fleet Management Invoicing and AR System	Invoices agencies for Motor Pool vehicles, permanently assigned vehicles and other miscellaneous expenses.	No	Yes	No
Department of Administration	State Parking	Maintains inventory of parking lots and spaces. Agency coordinators rent out spaces to individuals and create accounts receivable transactions and accept payment for that accounts receivable. A monthly charge for each rented space is created and a transmittal tape is received from payroll with a check. This tape pays the accounts receivable for the parking space rented by the individual. Also manual checks are accepted for payments for those individuals not on payroll.	Yes	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Administration	State Surplus Property	A statewide system utilized to sell surplus property from agencies. Invoices and accounts receivable transactions are created for inventory sold. Payments are made to agencies for goods sold. Refunds may also be created by the system.	Yes	Yes	No
Employment Security Commission	UI Tax	Maintains Employer information and financial records related to UI Tax payments.	No	No	Yes
Department of Administration	Procurement Card	Tracks procurement card transactions and summarizes transactions to specific account codes for data entry into NCAS.	Yes	Yes	No
Employment Security Commission	UI Benefits	Benefit Payments for Unemployment Insurance.	No	No	Yes
Department of Administration	Interactive Purchasing System	System allows agencies to post bids and tabulations for vendor viewing. Allows agencies to enter requisitions for items that must be bid by P&C. Allows P&C to process requisition from bid to award. The certification of award is sent the agency that enters it into the Procurement System.	Yes	Yes	No
Employment Security Commission	FARS	Administrative Accounting System.	Yes	Yes	No
Department of Administration	Miscellaneous Departmental Billing	Miscellaneous Departmental invoices for rent, utilities, janitorial services, positions, etc.	Yes	Yes	No
Employment Security Commission	MAGIC	A system to handle Helpdesk calls and to track assets.	Yes	Yes	No
Department of Justice	Tort Claims Processing	Batch interface to NCAS AP system	Yes	Yes	No
Department of Justice	DOJ Billing	billing creates invoices and receive payments applied to invoices and send a batch to NCAS	Yes	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Justice	Mapper Leave System	Tracks employee leave and comp time.	Yes	Yes	No
Department of Justice	Mapper Employee Roster	SBI On-Call roster listing	Yes	Yes	No
Department of Justice	Mapper Employee Training System	Used to record employee training attendance	Yes	Yes	No
Department of Justice	Mapper Agent Overtime Reporting	Used to record agent overtime and activities and computes number of overtime hours an agent can work in a cycle.	Yes	Yes	No
Department of Justice	Mapper Position Management and Evaluation	Provides organizational position information, including employee evaluation data.	Yes	Yes	No
Department of Justice	Personnel Application	Provides organizational position information, including application tracking.	Yes	No	No
Department of Justice	Facebook	Provides demographic and education information on employees	Yes	No	No
Department of Justice	Org Publisher	Provides information on employees in a Organizational Chart layout for EEO, Salary, phone, e-mail etc.	Yes	Yes	No
Department of Justice	Supplemental Staffing Spreadsheet	Track time reporting of supplemental staff	Yes	No	No
Department of Administration	Facilities Management - TM2	This software integrates all aspects of maintenance management operations. This includes routine, emergency, and preventive maintenance; building systems equipment listings, projects, contracts, work orders, and invoicing of billed services work requests, warehouse receiving and issuing.	Yes	Yes	No
Department of Administration	Indian Affairs Section 8 HUD Housing Payments	Capture monthly payment information for Section 8 HUD housing payments.	No	Yes	No
Department of Administration	OSP Training Center	Manual invoicing and accounts receivable for OSP training classes, etc.	Yes	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Administration	OSP Temporary Solutions	A spreadsheet is created listing all temporary personnel to be data entered into central payroll. Invoices are created and a tape and diskette are created which feeds the agency's accounts receivable system.	Yes	Yes	No
Department of Administration	OSP - State Employee Incentive Bonus Program	Invoice agencies for State Employee Incentive Bonus awards. Maintain accounts receivable.	Yes	Yes	No
Department of Correction	DOC Personnel: Spreadsheets & Databases	These are various user-developed spreadsheet tools that supplement PMIS functionality.	Yes	Yes	No
Department of Correction	DOC Personnel: Correctional Applicant Tracking	This application helps track and process applicants for correctional officer jobs.	Yes	Yes	No
Department of Agriculture	Application Tracking System	This system maintains data on applicants for job vacancies in the Department from the time they apply, through the qualification, interview, and selection processes. It also generates various reports and appropriate letters to be mailed to applicants.	No	No	Yes
Department of Agriculture	Agricultural Associations Assessments System	Certain agricultural associations in the State collect an assessment from their membership. These assessments are paid to NCDA & CS, which transfers the monies to the appropriate associations. This system records and reports the fees collected.	No	No	Yes
Department of Correction	DOC Personnel: Supplemental systems	Scheduling training activity for staff, and recording training completion.	Yes	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Agriculture	Feed Report System	This system assesses penalties on feed samples analyzed by the Feed Lab that are not in compliance with the guarantees; produces reports of penalty and non-penalty samples for manufacturers, dealers, the feed administrators, and inspectors; records final settlement of all penalties assessed; and maintains summary data for the Annual Feed Report.	No	No	Yes
Department of Agriculture	Feed Tonnage System	This system maintains records of inspection fees charged to fertilizer manufacturers who sell their products in North Carolina. It also produces reports and labels.	No	No	Yes
Department of Agriculture	Fertilizer Penalty System	This system computes penalties for fertilizer samples found not to be in compliance with the guarantees, generates reports for penalty and non-penalty samples to be sent to manufacturers and dealers, keeps track of final settlement of assessed penalties, and summarizes data for the annual Fertilizer Bulletin.	No	No	Yes
Department of Agriculture	Fertilizer Tonnage System	This system maintains records of inspection fees charged to fertilizer manufacturers who sell their products in North Carolina. It also produces reports and labels.	No	No	Yes
Department of Correction	DOC Controller: Utility Billing	Manages energy data.	No	Yes	No
Department of Correction	DOC Controller: miscellaneous databases	Miscellaneous A/R and A/P systems. Security database for NCAS and E-Procurement.	Yes	Yes	No
Department of Agriculture	Limestone Tonnage System	This system maintains records of inspection fees charged to limestone manufacturers who sell their products in North Carolina. It also produces reports and labels.	No	No	Yes

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Correction	Offender Population Unified System (OPUS)	OPUS is an offender management system. However, it also encompasses certain financial functions, as well as staff records. Modules include medical bill review, accounting for inmates on work release, cashless canteen sales, open purchase order receipting, fixed asset entry, food service management, vehicle mileage, highway charges, and laundry charges.	Yes	Yes	No
Department of Agriculture	Seed Assessments System	The NCDA&CS receives quarterly reports of seeds distributed in the State by seed dealers. The dealers are required to pay a fee based on the amounts sold. This system maintains this data and generates reports and labels.	No	No	Yes
Department of Agriculture	Standards Lab Scheduling System	The Standards Lab tests weights and measuring devices for accuracy. This system allows the Standards Lab personnel to schedule device tests in advance, to track those devices while they are in the various stages of testing, to track which devices have been returned, and to produce invoices for services rendered. In addition, the system keeps track of which invoices have and have not been paid as well as how much is owed by whom. The system is also designed to produce several reports which will allow the Lab to better service their clients.	No	No	Yes
Department of Correction	Correction Enterprise	Correction Enterprise is a non-reverting enterprise fund operated within the Department. The operation is managed using various user-created databases and spreadsheets.	No	Yes	No
Department of Agriculture	State Fair Advanced Ticket Sales	This system provides for the processing of orders received for Advanced Tickets Sales for the NC State Fair and the Mountain State Fair. Orders are received through the Yahoo Store Front on the Internet or through the mail. Labels and reports are produced.	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Agriculture	State Fair Entries	The State Fair Entries System maintains data regarding entries into the Livestock, Arts & Photography, and other exhibits and shows at the State Fair and the Mountain State Fair. It also generates checks to pay premiums to the winners of the shows.	Yes	Yes	No
Department of Agriculture	Structural Pest Control Inspection & Billing System	This system provides a base of all inspection and reinspection reports for retrieving information from which management can make its decisions. It is designed to provide an efficient method for billing companies using standard accounting procedures.	No	No	Yes
Department of Correction	Correction: Engineering Group functionality	The two main functions involve job-cost accounting, and inventory management.	Yes	Yes	No
Department of Agriculture	Ag Finance Loan Ledger	Loan software program used to manage NCAFA's and NCRRC's loan portfolios. Tracks principal and interest payments and issues 1098's at the end of the year for tax purposes. Balances principal each month with the Dept of Agriculture records. Generates end of the year reports.	No	No	Yes
Department of Agriculture	Billing System for Cooperative Grading Services	Custom accounts receivable billing system used to invoice industry for fruit, vegetable, peanut, and grain grading at shipping point locations. The system also invoices for terminal market fruit and vegetable grading fees and charges.	No	No	Yes
Department of Agriculture	Federal Phytosanitary Certificates	Database for inspection fees for phytosanitary certificates. Businesses request inspections to ensure their commodities that are to be shipped out of the country are pest free and meet Federal requirements for shipping.	No	No	Yes

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Agriculture	NCFORAY Cotton Boll Weevil Automated Assessment System	The Boll Weevil Eradication Program is a co-operative program that monitors cotton across the State to ensure the boll weevil is not reintroduced. Any reintroductions are eradicated. This system permits the Department to receive producer data, generate invoices, and post payments for producers. Additionally, the system permits the Department to access penalties and interest for over due accounts.	No	No	Yes
Department of Insurance	Credit Card Cash Receipts	Wachovia Bank is on state contract to provide credit card services to state agencies. (See the North Carolina Electronic Payments Program at the Office of the State Controller's Web Site). These services include processing credit card receipts by the agencies and depositing them in a designated account for the agency.	No	Yes	No
Department of Insurance	ITS Mainframe	ITS maintains DOI Agent License database.	No	Yes	No
Department of the State Treasurer	Wagers	System used to track recovered unclaimed or forgotten property and reunite these properties with the rightful owner.	No	Yes	No
Department of the State Treasurer	BAI File Retrieval	BAI File Retrieval	No	Yes	No
Department of the State Treasurer	FedLine	Federal Reserve Bank, FedLine	No	Yes	No
Information Technology Services	ITS Leave System	Track employee sick and vacation leave	Yes	No	No
Information Technology Services	Applicant Tracking System	Tracking by Personnel of applicants for vacant positions	No	No	Yes

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Information Technology Services	Inventory Tracking	Tracks inventory of stock in the ITS warehouse/store; tracks usage by customer; generates monthly sales by customer for internal billing; generates inventory at 6-30 for financial statement purposes	Yes	No	No
Information Technology Services	Cost Allocation	Allocation of central costs to user centers for A-87 purposes	Yes	No	No
Information Technology Services	Manual ITS Invoices	Creates invoices for ITS products/services not invoiced through MICS or TOMS/TCS	No	Yes	No
Information Technology Services	TCS	The telecommunications billing system uses a flat file format from the monthly TCS billing. TCS takes detail from local carriers and inserts record into the monthly billing.	No	Yes	No
Information Technology Services	MICS	Charge back system for usage of computing services by customers. The system generates monthly customer's invoices.	No	Yes	No
NC Community College System	Interface of the 59 Institutions of the Community College System	Interface to record the revenue and expenditure activity of the 58 community colleges and the Center for Applied Textile Technology by program area.	No	Yes	No
Department of Transportation	State Titling and Registration System (STARS)	STARS is a Division of Motor Vehicles application that manages the titling and registration for all vehicles owned or leased by residents, businesses and governments in the State of North Carolina. The application must issue the titles to these vehicles at the original sale and change of ownership. Vehicle license plates are also issued and renewed in STARS to both owners as well as dealers. All fees associated with these services are assessed and collected. There are frequent interfaces to other governmental entities to provide access to STARS information.	Yes	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
NC Housing Finance	Platinum Accounting System	The Agency was created for the specifically for real estate financing. Its functions are not duplicated by any other state agencies. The systems are unique to the Agency's needs. This system provides a general ledger and accounts payable system for the Agency's bond resolutions, operations, grants and housing trust fund.	Yes	Yes	No
NC Housing Finance	Budget System	The agency maintains as access database for the budget preparation process. This system is specifically designed to account for detailed operating information used by the agency.	Yes	Yes	No
NC Housing Finance	Employee Time Sheet Application	This is an application that tracks employees time by cost center. The information from this system allows the agency to prepare a cost allocation for which cost are allocated to various cost centers and is a basis for our administrative draws for federal funds. This system also tracks leave time accrued and taken by an employee.	Yes	No	No
NC Housing Finance	Fixed Asset System	This is an application that tracks assets by office number, expense code, vendor, capitalized and non-capitalized assets. This system provides an audit trail for fixed assets and various reporting options.	Yes	No	No
Department of the State Treasurer	UPS2000	Unclaimed Property UPS2000	No	No	Yes
Department of the State Treasurer	RSMM	New Retiree Tracking System	No	No	Yes
Department of the State Treasurer	KeyFast	KeyFast (Data Entry Package)	No	No	Yes

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of the State Treasurer	CDB	Contributory Death Benefit System	No	No	Yes
Department of the State Treasurer	Dynamics	Retiree Accounting System	Yes	No	No
Department of the State Treasurer	Refund Payroll	Refund Payroll	No	No	Yes
Department of the State Treasurer	FIRE	Fire and Rescue Contributions	No	No	Yes
Department of the State Treasurer	RSDO	Retirement Accounting Disability Overpayments System-FOxPro	No	No	Yes
Department of Public Instruction	Timesheets System	System allows employees to electronically report their time each month and supervisors to approve. Interfaces with Agency Personnel system	Yes	Yes	No
Department of Public Instruction	Agency Personnel System	Supports DPI's personnel system for processing demographic, payroll interface, performance evaluations, training and applicant's information.	Yes	Yes	No
Department of Public Instruction	Child Nutrition Claims	A summary of school foods claim information is entered into this system in October, and at the end of the year. This information is submitted by the LEAs, residential Child Care Institutions, and other private agencies.	No	Yes	No
Department of Public Instruction	Cash Management	Accepts and approves funds requested from LEAs. Disburses money through the Office of State Treasurer.	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Public Instruction	UERS	Supports the interfaces between UERS and the Dun and Bradstreet Systems to update the State and Federal Accounting system 503/804: Summary Expenditure data which is received from LEAs via the Uniform Education Reporting System.	No	Yes	No
Department of Public Instruction	Bonds	Tracking accounting of the School Improvement bonds. Interfaces with focus allotment system and DBS internal	No	No	Yes
Department of Public Instruction	Budget Allotments	Supports track allotted state/federal dollars and positions in the school systems as they are initially allotted and changed throughout the year. Initial allotments and revision reports are created for the LEAs and files are prepared for upload to DBS.	No	No	Yes
Department of Public Instruction	DBS External/Internal	Operates and maintains the system for processing and reporting expenditure and allotment information for the State Public Schools and Federal Funds, which is electronically collected from the LEAs and Charter schools. Includes an in-house developed report	No	Yes	No
Department of Public Instruction	Internal Bud	Internal BUD application used at DPI to coordinate manage and control state and local budget planning and expenditures of state and federal funds	No	Yes	No
Department of Public Instruction	HRMS	It is a personnel information management system used by the LEAs, also web accessible	No	No	Yes
Department of Public Instruction	BUD	Distributes Federal allotment and carryover amounts and LEAs. Manages federal budget and amendment information at the LEA and DPI. Assist with creating information for federal, local and state funds.	No	No	Yes
Department of Public Instruction	Property Insurance Policy	'Creates and tracks insurance policy information on school buildings throughout the State. Maintains a comprehensive school database for all participating LEAs. Tracks losses to buildings insured by the Property Insurance System	No	Yes	No

Agency Name	Agency Secondary System	System Description	Duplicate Functionality	Interface(s) with Core System	Other HR or Financial Function(s)
Department of Public Instruction	Scholarship Loans	Complex customized Accounts Receivable package maintaining financial information concerning recipients of Prospective Teach and Teacher Assistant Scholarship Loans. This includes generation of statements, interest calculations, etc. Payments on accounts	No	Yes	No

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Appendix F – Interviewee List

Given the project timeline, our ability to conduct face to face interviews was limited. As a result we focused our interview efforts on core system owners and key core system users. Our objective was to obtain a representative view of the systems strengths and weaknesses. The interviews were completed over a two week period from February 10th to 21st, 2003. The interviewees were chosen because of either their leadership roles in support of the current core systems, or because they represented a cross section of current or future end users. A list of interviewees by role and agency is provided below.

The interviewees were asked to comment on their understanding of the current system environment, any issues they may have with these systems, the viability of the existing core systems, functional/business requirements that are not being met by the existing systems, the risks attached to keeping the current set of software/hardware solutions, and opinions on the various options for the future.

Name	Role / Interview Focus Area	Group
Mary Overcash	Consultant (Programmer), Central Payroll	OSC
Roger Farmer	Manager	OSC
Jeff Becker	Personnel Director	DOC
Sharon Greene	Personnel Tech for the Department of Crime Control (PMIS user)	DOCC&PS
Angela Faulk	DOT HR	DOT
Cora Bright	IT Manager DOT Payroll	DOT
Lynette Parrish	Payroll Lead, DOT Payroll	DOT
Wayne Stallings	DOT Controller, BSIP	DOT
Wendy Griffin	Manager DOT Payroll	DOT
Agness Gunter	IT-Systems Development	OSBM
Randy Barnes	Assistant Secretary Planning, Development and Tech – Revenue/Tax	DOR
Joyce Ashby	HUB Office – Administration	HUB-DOA
Anne Brown	Personnel Analyst ITS	ITS
George Bakolia	State CIO	ITS
Patti Bowers	Chief Purchasing Officer, IT	ITS
Jim Johnson	Director Legislative Fiscal Research	Legislative Fiscal Research (LFR)
Lynn Muchmore	Legislative Fiscal Research	Legislative Fiscal Research (LFR)
Terree Kuiper	Director of Employment and Compensation, NCSU	NCSU
Wanda Karangelen	Assistant Director, Salary Administration & HRIS	NCSU
Amber Young	CMCS	OSC
Deborah Smith	NCAS Technical Review	OSC

Name	Role / Interview Focus Area	Group
Don Waugh	Assistant State Controller	OSC
Jan Matthews	Personnel Officer	OSC
Jim MacCaulay	NCAS, e-Procurement	OSC
Zeke Partin	Assistant State Controller	OSC
Anita Ward	Project Supervisor for State Personnel, PMIS	OSP
Charles Chapman	Head of PMIS	OSP
Gary Wiggins	HR Partner-Planning & Development	OSP
Thom Wright	State Personnel Director	OSP
Barbara Stone-Newton	Purchasing Group Manger	DOA-P&C
Bob Rhinehardt	Acting State Purchasing Officer	DOA-P&C
Sharon Hayes	e-Procurement Project Director	DOA-P&C
Sherry Garte	Contract Specialist – IT Purchasing	ITS
Ray Broughton	Chief Purchasing Officer	DOA-P&C
Frank Rogers	Revenue (PMIS user)	DOR
Mary Scro	ITAS Functional & Technical Review – DOR	DOR
Marshall Barnes	Retirement Payroll	DST
Bill Golden	Deputy Treasurer/CIO	DST
Bob Kaoch – Wexler and Associates	Consultant with Treasurer (State Retirement System)	DST
Michael Williamson	(Deputy State Treasurer and Director)	DST

Appendix G – Acronyms and Common Terms

The following is a list of acronyms and common terms used often in this document as well as within the North Carolina agencies.

Acronym/Common Term	
ACH	Automated Clearing House
ACTS	Automated Collection & Tracking System
ADATCS	Alcohol and Drug Abuse Treatment Centers
AOC	Administrative Office of the Courts
AP	Accounts Payable
APPC	Advanced Program-to-Program Communication
APT	Advanced Publishing Technology
AR	Accounts Receivable
Ariba	The software solution for the State of North Carolina's e-procurement system
ASP	Application Service Provider
Assembler (language)	An early programming language having the same structure and set of commands as machine languages but they enable a programmer to use names instead of numbers
BPS	Budget Preparation System
BRS	Budget Revision System
BSIP	Business Systems Improvement Project. (Department of Transportation)
CAFR	Comprehensive Annual Financial Report
CBS	Core Banking System
CCPS	Crime Control and Public Safety
CICS	Customer Information Control System (IBM)
CIO	Chief Information Officer
CMCS	Cash Management Control System
COBOL	Common Business Oriented Language
COTS	Commercial Off The Shelf
CPS	Central Payroll System
CRM	Customer Relationship Management
CRP	Community Rehabilitation Program
CS	Consumer Services
CTI	Computer Technology Integration
DB2	Database 2: A family of relational database products offered by IBM
DBA	Doing Business As
DCD	Division of Child Development
DCF	Document Control Facility
DCR	Department of Cultural Resources
DFS	Division of Facility Services
DHHS	Department of Health and Human Services
DIRM	Division of Information Resource Management within DHHS
DMA	Division of Medical Assistance within DHHS
DMH	Division of Mental Health within DHHS
DMV	Division of Motor Vehicles within DOT
DOC	Department of Corrections

Acronym/Common Term	Definition
DOI	Department of Insurance
DOJ	Department of Justice
DOJJ	Department of Juvenile Justice
DOR	Department of Revenue
DOT	Department of Transportation
DOT-BSIP	Department of Transportation's Business Systems Improvement Project
DPH	Division of Public Health within DHHS
DSB	Division of Services for the Blind within DHHS
DSS	Decision Support System
DST	Department of State Treasurer
DVR	Division of Vocational Rehabilitation within DHHS
e-Bid	A program that provides internet solutions for on-line bidding
EDI	Electronic Data Interchange
EEO	Equal Employment Opportunities
EFT	Electronic Funds Transfer
EFT	Electronic Funds Transfer
EIS	Eligibility Information System
EJB	Enterprise JavaBeans
ELF	Electronic Filing for Individual Income Tax
ELTS	Employee Leave Tracking System
EPICS	Enterprise Program Integrity Control System
e-Quote	Functionality within e-procurement to facilitate on-line e-quoting from suppliers
ERP	Enterprise Resource Planning
FAMRS	Federal Aid Management and Reporting System
FEIN	Federal Employment ID Number
FMLA	Family and Medical Leave Act of 1993
FSIS	Food Stamp Info System
FTE	Full Time Equivalent
FTP	File Transfer Protocol
GAAP	Generally Accepted Accounting Principles
GASB	Governmental Accounting Standards Board
Geac	Software solution for the North Carolina Accounting System
GL	General Ledger
GUI	Graphical User Interface
HEARTS	Healthcare Enterprise Accounts Receivable Tracking System
HIPAA	Health Insurance Portability and Accountability Act of 1996
HR	Human Resources
HTML	Hyper Text Markup Language – Authoring Language for items on the World Wide Web
HUB	Historically Underutilized Business
HUD	Department of Housing and Urban Development
HW	Hardware
IEVS	Income and Eligibility Verification System
IFP	Intelligent Forms Processing
Integrated System	Two or more system components merged together to behave as a single system that share a common database. Increasingly, the term integrated software is reserved for applications that combine functions like budget, accounting and procurement into a single package.

Acronym/Common Term	Definition
Interface	A boundary across which two independent systems communicate with each other. The interfaces can communicate real-time or in a batch (periodic) mode and may be fully automated or require manual intervention.
IPRS	Integrated Payments and Reporting System
IPS	Interactive Purchasing System
IRMC	Information Resource Management Commission
IRS	Internal Revenue Service
IRSP	Integrated Retirement System Planning
IT	Information Technology
ITAS	Integrated Tax Administration System
ITS	Information Technology Services
IVR	Interactive Voice Response
JAVA	Java is a general purpose programming language with a number of features that make the language well suited for use on the World Wide Web.
JCL	Job Control Language
JETS	Java Enabled Tax System
LEA	Local Education Authority. School units within the Department of Public Education.
LRC	Legislative Research Commission
MARS	Members Allowance Reporting System
MICS	Management Information Control System
MS	Microsoft
NCAS	North Carolina Accounting System
NCDA	North Carolina Department of Agriculture
NCDOT	North Carolina Department of Transportation
NCOA	National Change Of Address
NSF	Not Sufficient Funds
ODBC	Open Database Connectivity
OFP	On-line Filing and Payments
OPUS	Offender Population Unified System
OS	Operating System
OSBM	Office of State Budget Management
OSC	Office of the State Controller
OSHA	Occupational Safety and Health Administration
OSP	Office of State Personnel
P&C	Division of Purchasing and Contracts
PC	Personal Computer
PMIS	Personnel Management Information System
PO	Purchase Order
RCA	Revenue Collection and Analysis System
RDBMS	Relational Database Management System
RFI	Request for Information
RFP	Request for Proposal
RFQ	Request for Qualification
RPS	Retiree Payroll System
SAA	Special Assistance for the Aged
SAB	Special Assistance for the Blind
SAD	Special Assistance for the Disabled
SAP	A software company providing ERP business solutions

Acronym/Common Term	Definition
SBI	State Bureau of Investigation
SCC	Subsidized Child Care
SCD	Special Assistance for Certain Disabled
SCS	Salary Control System
SoSKB	Secretary of State KnowledgeBase
SQL	Structured Query Language
SSN	Social Security Number
STA	State Technical Architecture
STARS	State Titling and Registration System
SW	Software
TAS	Tax Administration System (Accenture)
TOMS	Technology On-Line Management System
UI	Unemployment Insurance
UNIX	A multi-user, multitasking operating system developed by Bell Labs
UOM	Unit of Measure
USUB	Unauthorized Substance
VA	Veteran's Affairs
VendorLink	An on-line vendor registration system with the Division of Purchase and Contract to support the State's bidding process.
VR	Vocational Rehabilitation
VSAM	Virtual Storage Access Method